Change
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 1 September 1990

OPERATOR'S MANUAL

RADIO SETS
AN/VRC-12 (NSN 5820-00-223-7412)
AN/VRC-43 (NSN 5820-00-223-7415)
AN/VRC-44 (NSN 5820-00-223-7417)
AN/VRC-45 (NSN 5820-00-223-7418)
AN/VRC-46 (NSN 5820-00-223-7433)
AN/VRC-47 (NSN 5820-00-223-7434)
AN/VRC-48 (NSN 5820-00-223-7435)
AND
AN/VRC-49 (NSN 5820-00-223-7437)
(USED WITH AN INTERCOM SYSTEM)

TM 11-5820-401-10-2, 23 November 1982, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a vertical bar adjacent to the identification number.

Remove pages	Insert pages
Inside Front Cover	None
i through iv	A through E/(F blank)
v and vi	i and ii
1-7 and 1-8	1-7 and 1-8
1-11 through 1-14	1-11 through 1-14
1-21 through 1-38	1-21 through 1-38
2-3 and 2-4	2-3 and 2-4
2-21 and 2-22	2-21 and 2-22
2-29 and 2-30	2-29 and 2-30
2-37 and 2-38	2-37 and 2-38
2-43 through 2-56	2-43 through 2-56
2-59 and 2-60	2-59 and 2-60
2-65 and 2-66	2-65 and 2-66
2-69 through 2-74	2-69 through 2-74

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Remove pages	Insert pages
2-83 through 2-86	2-83 through 2-86
2-89 through 2-98	2-89 through 2-98
2-111 through 2-120	2-111 through 2-120
3-1 through 3-4	3-1 through 3-4
A-1 through A-3/(A-4 blank)	A-1 through A-3/ (A-4 blank)
B-1 and B-2	B-1 and B-2
C-3 through C-6	C-3 through C-6
C-11 and C-12	C-11 and C-12
C-19 and C-20	C-19 and C-20
D-1 and D-2	D-1 and D-2
Index-1 through Index-9	Index-1 through Index-9/ (Index-10 blank)
None	DA Form 2028-2 Sample (front and back)

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

THOMAS F. SIKORA
Brigadier General, United States Army
The Adjutant General

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5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1. DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL
2. IF POSSIBLE, TURN OFF THE ELECTRICAL POWER
3. IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A DRY WOODEN POLE OR A DRY ROPE OR SOME OTHER INSULATING MATERIAL
4. SEND FOR HELP AS SOON AS POSSIBLE
5. AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

WARNING

SERIOUS INJURY OR EVEN DEATH CAN HAPPEN IF THE FOLLOWING ARE NOT CAREFULLY OBSERVED WHEN INSTALLING AND USING THE ANTENNAS USED WITH YOUR RADIO SETS.

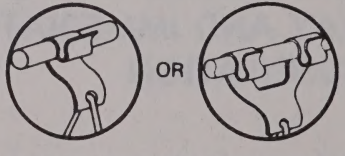
BEFORE ANY MISSION FIND OUT

1. ARE THERE ANY POWERLINES IN YOUR AREA OF OPERATION?
2. HOW HIGH ARE THESE POWERLINES?
3. HOW TALL ARE THE POLES OR TOWERS CARRYING POWERLINES?

MOBILE OPERATION WITH WHIP ANTENNAS
DO NOT STOP YOUR TRACKED VEHICLE UNDER POWERLINES.

- IF POSSIBLE, TRY TO MAINTAIN MOBILE COMMUNICATIONS WITH YOUR ANTENNA(S) TIED DOWN.
- MAKE SURE AN ANTENNA TIP CAP IS SECURELY TAPED ON THE END OF ANY WHIP ANTENNA HAVING TWO OR THREE ANTENNA ELEMENTS.
- DO NOT LEAN AGAINST OR TOUCH ANY ANTENNA WHILE THE TRANSMITTER IS ON.
- DURING CROSS-COUNTRY OPERATION, DO NOT ALLOW ANYONE TO STICK AN ARM, LEG OR WEAPON OVER THE SIDES OF THE TANK. IF YOUR ANTENNA ACCIDENTALLY TOUCHES A POWERLINE AND A LEG, ARM OR WEAPON CONTACTS A DAMP BUSH OR THE GROUND, A SERIOUS OR FATAL ACCIDENT CAN HAPPEN.
- IF YOU ARE NOT SURE THAT AN ANTENNA ON YOUR TANK WILL CLEAR A POWERLINE, STOP BEFORE YOU GET CLOSE TO THE POWERLINE AND EITHER CAREFULLY TIE DOWN THE ANTENNA OR REMOVE ANTENNA SECTIONS TO MAKE SURE THAT YOU CAN SAFELY DRIVE UNDER THE POWERLINE.
- ELECTROMAGNETIC RADIATION. DO NOT STAND CLOSER THAN 20 INCHES (.5 METERS) TO ANTENNA AS-1729/VRC WHEN THE UNIT IS TRANSMITTING. HIGH LEVELS OF ELECTROMAGNETIC RADIATION EXIST IN THIS AREA.
- VEHICLES WITH AT-912 OR AS-1729 MOUNTS MORE THAN 6' ABOVE GROUND CAN STRIKE RAILROAD CROSSING POWER LINES IF THE WHIP ANTENNA COMES LOOSE FROM ITS TIE-DOWN DURING ROAD OR RAIL MOVEMENT. A SERIOUS OR FATAL ACCIDENT COULD HAPPEN.

Secure antenna tie-down for road or rail movement depending on tie-down clamp supplied.



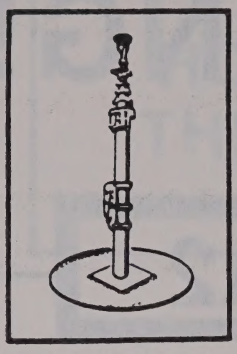
WITH THE ANTENNA TIED DOWN IN THE SECURE POSITION DAMAGE TO THE WHIP CAN OCCUR IF THE WHIP CONTACTS ANY FIXED OBJECT SUCH AS OVERHEAD BRIDGES, ETC. THE POSSIBILITY OF SERIOUS OR FATAL INJURY EXISTS TO OUTSIDE PERSONNEL FROM FLYING ANTENNA PARTS.

WARNING

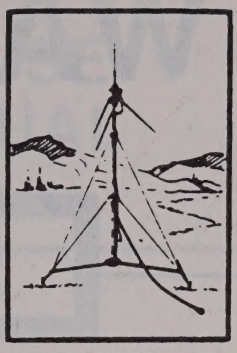
NEVER ATTEMPT TO CARRY A RADIO RECEIVER TRANSMITTER YOURSELF. SERIOUS INJURY COULD RESULT.

FIXED OPERATION WITH LONG RANGE ANTENNAS

WARNING



TELESCOPING
ANTENNA MAST



EXTENDED RANGE
ANTENNA

NEVER ERECT THESE LONG RANGE ANTENNAS DIRECTLY UNDER POWERLINES.

If you must erect these long range antennas near powerlines, powerline poles or towers, or buildings with overhead powerline connections, never put the antenna closer than two times the antenna height from the base of the powerline, pole, tower or buildings.

NEVER ATTEMPT TO ERECT ANY LONG RANGE ANTENNA WITHOUT A FULL TEAM

Before erecting any long range antenna, inspect all the parts making up the antenna kit. Do not erect the antenna if any parts are missing or damaged.

Do as much of the assembly work as possible on the ground.

When erecting the antenna, allow only team personnel in the erection area.

Make sure that the area for the anchors is firm. If the ground is marshy or sandy, get specific instructions from your crew chief or supervisor on how to reinforce the anchors.

When selecting locations for anchors, avoid traveled areas and roads. If you cannot avoid these areas, get specific instructions from your supervisor as to what clearance your guy wires and ropes must have over the traveled areas and road.

Clearly mark all guy wires and ropes with the warning flags or signs supplied by your unit. In an emergency, use strips of white cloth as warning streamers.

If you suspect that powerlines have made accidental contact with your antenna, stop operating, rope off the antenna area, and notify your superiors.

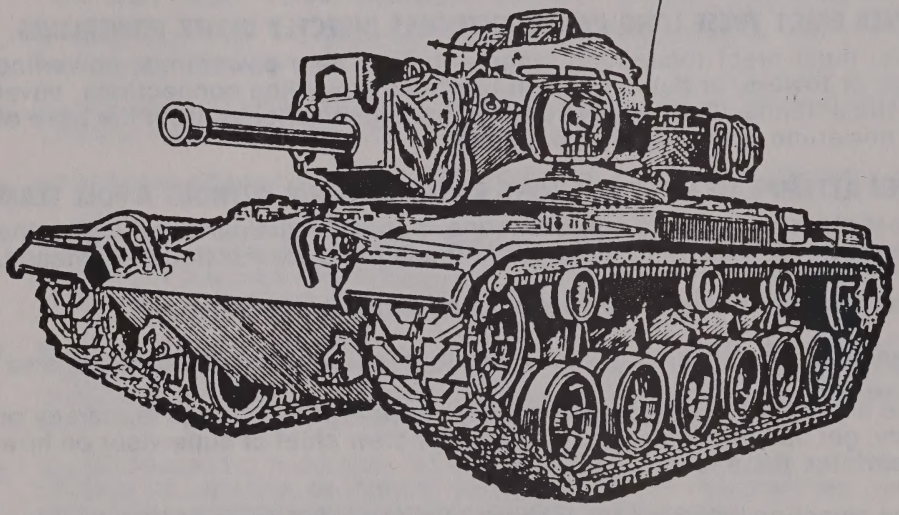
If the weather in your area can cause ice to form on your long range antenna and its guy wires and ropes, add extra guys to support the system. Rope off the area and post it with warning signs like "BEWARE OF FALLING ICE."

Do not try to erect any antenna during an electrical storm.

Keep a sharp eye on your anchors and guys. Check them daily and immediately before and after bad weather.

WARNING!

M60A2



ANY TIME RECEIVER-TRANSMITTER (RT-246(*)/VRC OR RT-524(*)/VRC) IS INSTALLED IN M60A2 TANKS, SPECIAL PURPOSE CABLES MUST BE USED TO CONNECT THE RECEIVER-TRANSMITTER TO ITS ANTENNA.

DO NOT USE STANDARD CABLES IN THE M60A2 TANK. SERIOUS INJURY OR EVEN DEATH CAN OCCUR BECAUSE THE STANDARD CABLES RADIATE UNDESIRABLE SIGNALS THAT COULD CAUSE THE MAIN TURRET AND/OR THE TANK COMMANDER'S CUPOLA AND/OR THE MAIN GUN TO MOVE VIOLENTLY.

HOW TO USE THIS MANUAL

- This technical manual tells about the typical arrangement and use of the AN/VRC-12 Series of Radio Sets used with intercom equipment.

- You may be required to use voice secure equipment (VINSON or NESTOR COMSEC EQUIPMENT) while operating. This manual also covers the hookup and use of the voice secure equipment.

- While using this manual, remember that your mission and type of vehicle or installation will determine the types and number of audio accessories authorized, antennas used, cable installation and routing, and the physical location of the equipment.

- The appendices in the back of this manual list the various components that can be used with this equipment. Use the Department of Army Supply Bulletins to identify the various harnesses, installation kits and accessory kits authorized for your installation.

- As an aid while you are inventorying or transferring your equipment, use a copy of the proper hand receipt in HAND RECEIPT Technical Manual TM 11-5820-401-10-2-HR.

TECHNICAL MANUAL

No. 11-5820-401-10-2

*TM 11-5820-401-10-2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 23 November 1982

Operator's Manual

RADIO SETS
AN/VRC-12 (NSN 5820-00-223-7412), AN/VRC-43 (NSN 5820-00-223-7415), AN/VRC-44 (NSN 5820-00-223-7417), AN/VRC-45 (NSN 5820-00-223-7418), AN/VRC-46 (NSN 5820-00-223-7433), AN/VRC-47 (NSN 5820-00-223-7434), AN/VRC-48 (NSN 5820-00-223-7435), AND AN/VRC-49 (NSN 5820-00-223-7437)

(USED WITH AN INTERCOM SYSTEM)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

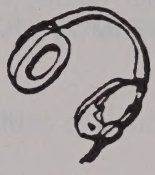
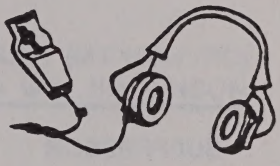
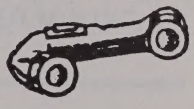
You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to: Commander, US Army Communications-Electronics Command, and Fort Monmouth, ATTN: AMSEL-LC-ME-PS, Fort Monmouth, New Jersey 07703-5000.

In either case, a reply will be furnished direct to you.

*This manual supersedes TM 11-5820-401-10-2, 30 December 1977, including all changes.

			Paragraph	Page
HOW TO USE THIS MANUAL			iv	
CHAPTER	1.	INTRODUCTION		
Section	I.	General Information	1-1	1-1
Section	II.	Equipment Description	1-9	1-15
Section	III.	Differences Among Models	1-24	1-39
CHAPTER	2.	OPERATING INSTRUCTIONS		
Section	I.	Description and Use of Operator's Controls, Indicators and Receptacles .	2-1	2-1
Section	II.	Preventive Maintenance Checks and Services	2-51	2-44
Section	III.	Installation, Assembly and Disassembly of Major Items	2-53	2-67
Section	IV.	Cabling	2-63	2-75
Section	V.	Siting and Frequency Selection	2-72	2-91
Section	VI.	Operation Under Usual Conditions.....	2-75	2-93
Section	VII.	Operation Under Unusual Conditions ..	2-100	2-119
CHAPTER	3.	MAINTENANCE INSTRUCTIONS		
Section	I.	Lubricating Instructions	3-1	3-1
Section	II.	Troubleshooting	3-2	3-2
APPENDIX	A.	REFERENCES		A-1
APPENDIX	B.	COMPONENTS OF END ITEM LIST		
Section	I.	Introduction		B-1
Section	II.	Integral Components of End Items.....		B-3
Section	III.	Basic Issue Items List (Not Applicable)		
APPENDIX	C.	ADDITIONAL AUTHORIZATION LIST		
Section	I.	Introduction		C-1
Section	II.	Additional Authorization List		C-2
APPENDIX	D.	EXPENDABLE SUPPLIES AND MATERIALS LIST		
Section	I.	Introduction		D-1
Section	II.	Expendable Supplies and Materials List		D-2
		SUBJECT INDEX		Index-1

1-2. NOMENCLATURE CROSS REFERENCE LIST - Continued

COMMON NAME	OFFICIAL NOMENCLATURE AND GENERAL APPLICATION	
DH-132A HELMET	Helmet, Combat Vehicle Crew. Comes in various sizes with HEADSET-MICROPHONE attached.	
MICROPHONE	Microphone, Dynamic M-80/U.	
EARPHONE HEADSET	Headset H-140A/U or H-251/U.	
COMBINATION HEADSET	Headset Microphone H-161/U.	
HANDSET	Handset H-189/GR or H-250.	
LOUDSPEAKER	Loudspeaker LS-454/U.	

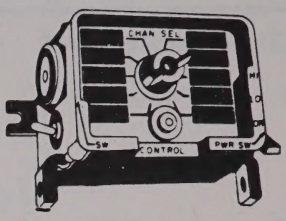
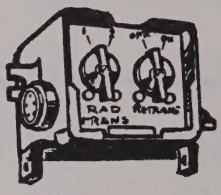
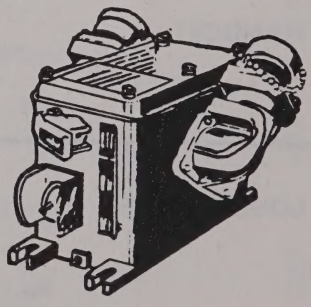
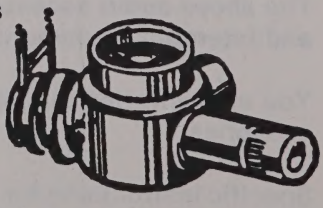
NOTE

The above audio accessories may be connected in many ways to your R-T and intercom equipment.

You also will find single or double cables for connecting some audio accessories.

Specific instructions for connecting and using these audio accessories will be found in the OPERATION UNDER USUAL CONDITIONS section.

1-2. NOMENCLATURE CROSS REFERENCE LIST - Continued

COMMON NAME	OFFICIAL NOMENCLATURE AND GENERAL APPLICATION
REMOTE CONTROL BOX	Control, Radio Set C-2742/VRC. Used for remote control of the PUSHBUTTON R-T. (RT-246(*)/VRC) 
RADIO RELAY BOX	Control, Radio Set C-2299/VRC. Used for automatic radio relay with Radio Sets AN/VRC-45 and AN/VRC-49.  It is also made available with other AN/VRC-12 SERIES of radio sets to allow convenient connections of the audio accessories to an R-T.
SUPPRESSOR	Suppressor, Electrical Transient MX-7778B/GRC. A large electronic unit used to protect the electronic equipment from being damaged by unusual output from the vehicle battery-charging system. 
MINI-SUPPRESSOR	Suppressor, Electrical Transient MK-2096/GRC A very small unit used in special applications in place of the MX-7778B/GRC It is connected directly to either the R-T or AUX RECEIVER MOUNT. 

1-2. NOMENCLATURE CROSS-REFERENCE LIST - Continued

COMMON NAME	OFFICIAL NOMENCLATURE AND GENERAL APPLICATION
VINSON COMSEC EQUIPMENT	TSEC/KY-57 voice secure equipment. Includes Power Supply HYP-57/TSEC and Mount MT-4626/VRC. This is the latest voice-secure equipment in the field.
VINSON R-T MOUNT	The standard R-T MOUNT (MT-1029/VRC) which has been modified to work with the VINSON COMSEC equipment. Modification includes the permanent addition of Junction Box J-3513/U to the R-T MOUNT.
VINSON AUX RECEIVER MOUNT	The standard AUX RECEIVER MOUNT (MT-1898/VRC) which has been modified to work with the VINSON COMSEC equipment. Modification includes the permanent addition of Junction Box J-3514/U to the AUX RECEIVER MOUNT.
VINSON RELAY BOX	Control, Retransmission C-10734/VRC. When VINSON COMSEC equipment is involved in a radio relay (retransmission) hookup of the AN/VRC-45 or AN/VRC-49, the VINSON RELAY BOX is used in place of the standard RADIO RELAY BOX (C-2299/VRC).
VINSON SWITCH BOX	Switch, Audio Frequency SA-2171/VRC. Used when one VINSON COMSEC equipment is to be switched from one R-T to an AUX RECEIVER.
NESTOR COMSEC EQUIPMENT	TSEC/KY-38 voice secure equipment. An early model of voice-secure equipment.

1-2. NOMENCLATURE CROSS REFERENCE LIST - Continued

COMMON NAME	OFFICIAL NOMENCLATURE AND GENERAL APPLICATION
AUTHORIZED RADIO/INTERCOM INSTALLATION HARNESS	Includes cables, mounts (example = R-T MOUNT), control boxes (example = RADIO RELAY BOX), and the entire INTERCOM SET AN/VIC-1. All items in the AUTHORIZED RADIO/INTERCOM INSTALLATION HARNESS stay with the tracked vehicle, even if the tracked vehicle is turned in.
AUTHORIZED RADIO ACCESSORY KIT	Includes the necessary microphones, loudspeakers, headsets, handsets, AUX RECEIVER ANTENNA, etc. All items in the AUTHORIZED RADIO ACCESSORY KIT are removed from the tracked vehicle before the tracked vehicle is turned in.
AUTHORIZED RADIO/ INTERCOM INSTALLATION ACCESSORY KIT (IT WAS CALLED COMBINATION KIT)	Includes all the cables, audio accessories and other items needed when another radio is to be installed in a tracked vehicle. All items in the AUTHORIZED RADIO/INTERCOM INSTALLATION ACCESSORY KIT are removed from the tracked vehicle before the tracked vehicle is turned in.
AUTHORIZED COMSEC INSTALLATION KIT	Includes cables and hardware needed to install VINSON and NESTOR COMSEC equipment in a tracked vehicle. All items in the AUTHORIZED COMSEC INSTALLATION KIT are removed from the tracked vehicle before the tracked vehicle is turned in.

NOTES

1. The DH-132 HELMETS and the audio components attached to the helmets are NOT part of any of the above kits. DH-132 HELMETS and the attached audio accessories are authorized separately.

2. Use the ADDITIONAL AUTHORIZATION LIST (appx C) and Department of the Army Supply Bulletin 11-131 to identify which kits and components are authorized for the radios in your tracked vehicle.

3. Use Department of the Army Supply Bulletin 11-700 to identify the AUTHORIZED COMSEC INSTALLATION KIT for your tracked vehicle.

1-3. GLOSSARY

CIPHER mode	=	Secure (scrambled) communications using VINSON or NESTOR COMSEC EQUIPMENT.
configuration	=	The arrangement of parts or components.
cryptovariables	=	The classified electronics information fed into VINSON or NESTOR COMSEC equipment to give you secure communications (CIPHER MODE).
NESTOR	=	Early models of COMSEC EQUIPMENT.
RADIO WIRE INTEGRATION	=	Interconnecting radios and telephone signals.
retractile	=	A retractile cable draws itself back to a shorter length when released.
sidetone	=	The sound of your voice in your headset or loudspeaker.
VINSON	=	The latest model of COMSEC EQUIPMENT.

1-4. LIST OF ABBREVIATIONS AND SYMBOLS

ac	alternating current
am	amplitude modulation
ASC	Area Signal Center
CEOI	Communications Electronics Operation Instructions
C-E ORG MAINT	Communications-Electronics Organizational Maintenance.
dc	direct current
Hz	Hertz
kHz (was KC)	kiloHertz
mHz (was KC)	megaHertz
rf	radio frequency
RWI	Radio Wire Integration
M1 ABRAMS	Tank, Combat, full-tracked, 105-MM Gun, M1 ABRAMS
X-MODE	Voice secure or digital radio communications
(*)	This symbol means all models of the equipment.

1-5. MAINTENANCE FORMS, RECORDS, AND REPORTS

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, as contained in Maintenance Management Update.

b. Reporting of Item and Packaging Discrepancies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/ SECNAVINST 4355.18/AFR 400-54/MCO 4430.3J.

c. Transportation Discrepancy Report (TDR) (SF 361). Fill out and forward Transportation Discrepancy Report (TDR) (SF 361) as prescribed in AR 55-38/ NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 4500.15.

1-6. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Refer to TM 750-244-2 for proper procedures for destruction of this equipment to prevent enemy use.

1-7. PREPARATION FOR STORAGE OR SHIPMENT

The storage and shipment of these radio sets must be carefully done. Complete instructions will be found in Chapter 3 of TM 11-5820-401-20-2, 3 Jan 84.

1-8. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-PA-MA-D, Fort Monmouth, New Jersey, 07703-5000. We'll send you a reply.

AN/VIC-1 FOR NESTOR COMSEC USE IN A TRACKED VEHICLE.

1. AUX RECEIVER WITH ITS MOUNT.
   Underside of mount has receptacles J11, J12, and J13.
   Referred to as the "B" AUX RECEIVER when using intercom.
2. AUX RECEIVER ANTENNA.
3. AUX RECEIVER LOUDSPEAKER.
   Loudspeaker has short cable permanently attached to it.
4. PUSHBUTTON R-T WITH ITS MOUNT.
   Underside of mount has receptacles J21, J22, and J23.
   Referred to as the "A" RECEIVER-TRANSMITTER when using intercom.
5. SUPPRESSOR, ELECTRICAL TRANSIENT.

5A. MINI-SUPPRESSOR
   Used instead of 5 in some vehicles.

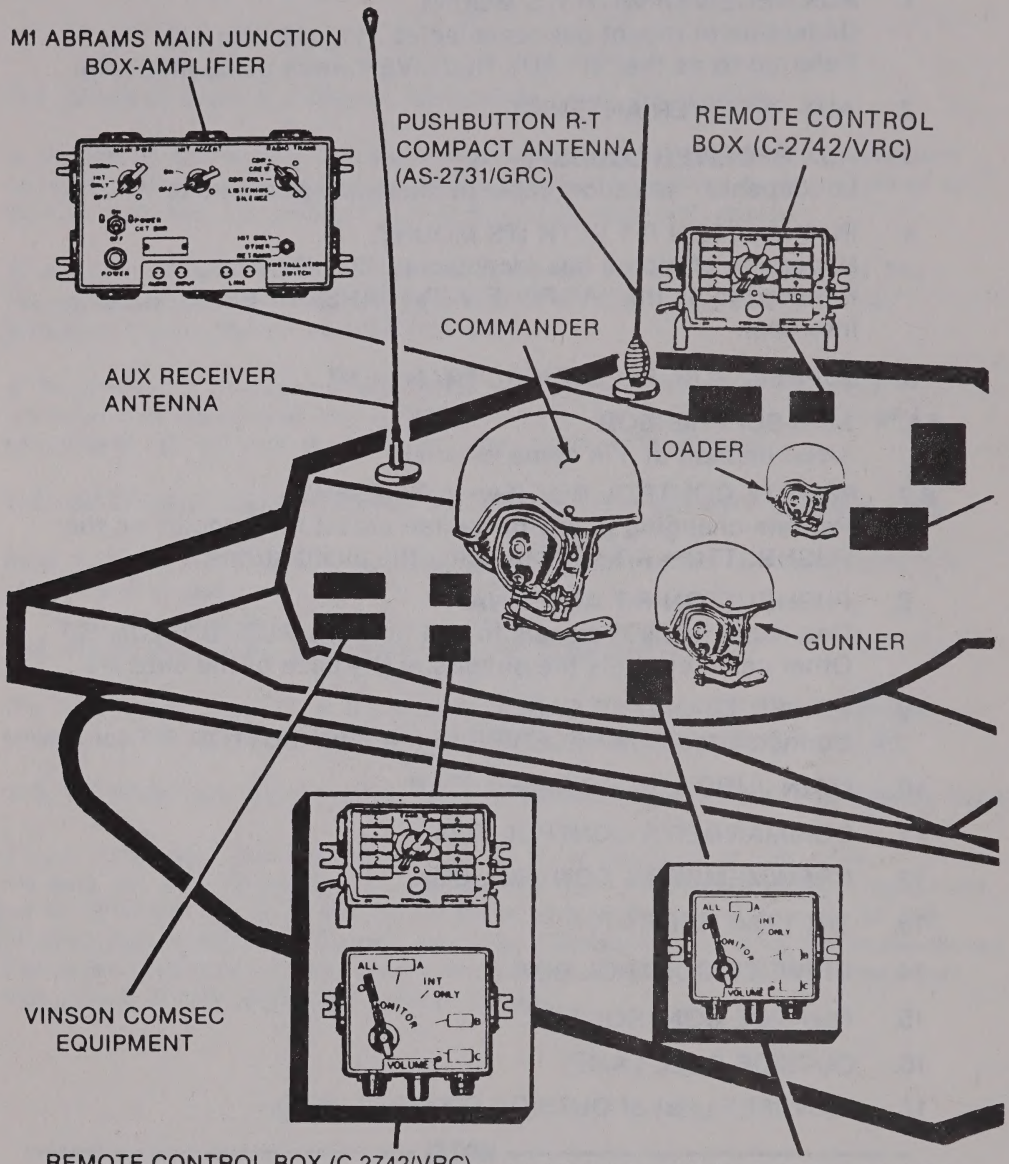
6,7. REMOTE CONTROL BOX (two in TANDEM).
   Permits changing to any of the ten preset frequencies on the PUSHBUTTON R-T without using the pushbuttons.

8. PUSHBUTTON R-T ANTENNA.
   One cable feeds rf signals to and from the PUSHBUTTON R-T.
   Other cable controls the circuits in the base of the antenna.
9. POWER TRANSFER CABLE.
   Connects the AUX RECEIVER to the PUSHBUTTON R-T for power.
10. MAIN JUNCTION BOX-AMPLIFIER.
11. COMMANDER'S CONTROL BOX.
12. CREWMEMBER'S CONTROL BOX.
13. DH-132A HELMET.
14. DRIVER'S CONTROL BOX.
15. OUTSIDE CONTROL BOX.
16. OUTSIDE CALL LAMP.
17. HANDSET (part of OUTSIDE CONTROL BOX).

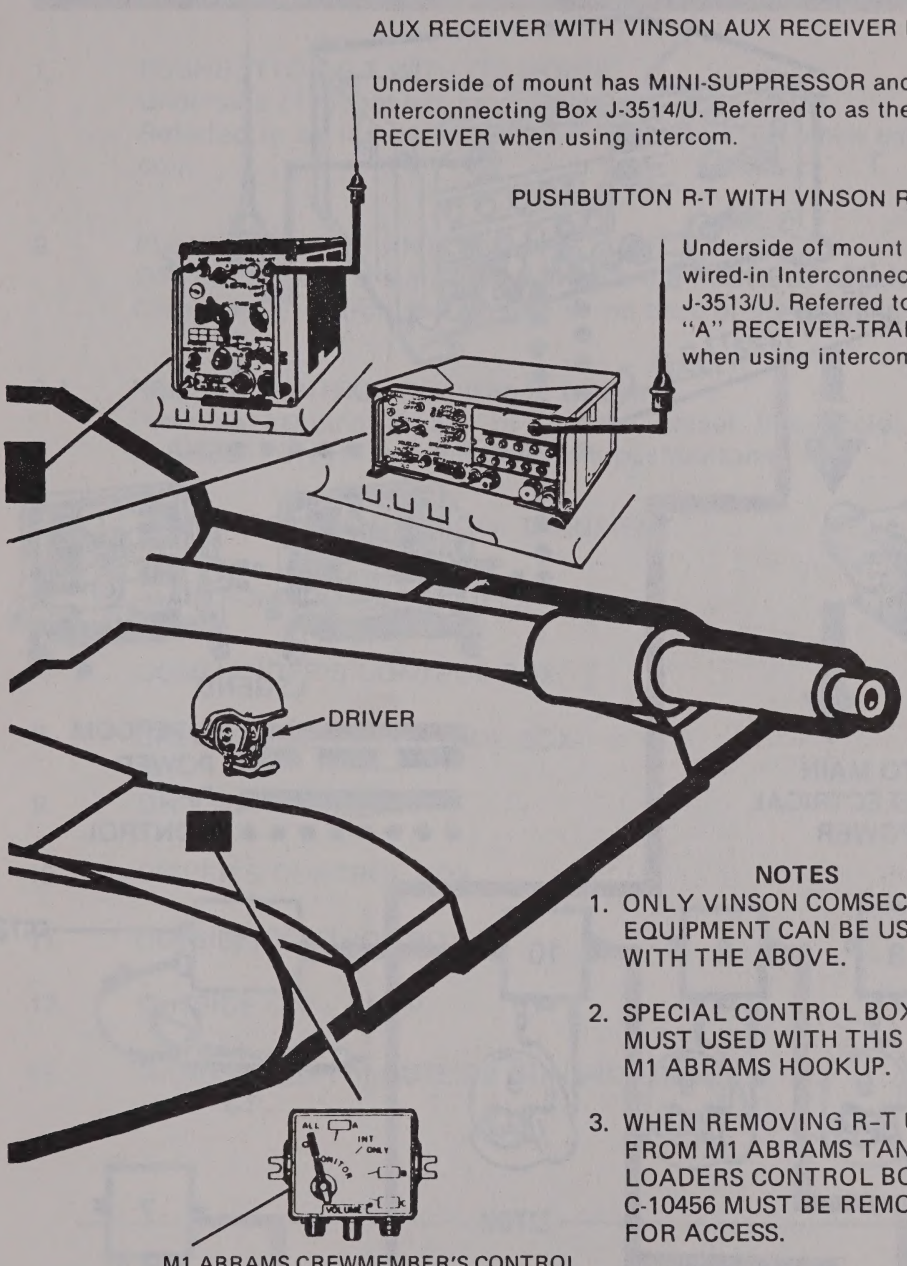
NOTES

1. ONLY NESTOR COMSEC EQUIPMENT MAY BE USED WITH THE ABOVE.
2. ANY COMBINATION OF AUDIO ACCESSORIES AS SHOWN ON PAGES 42 AND 43 MAY BE USED WITH THIS HOOKUP.
3. PUSHBUTTON R-T OPERATES ON ONE FREQUENCY AND THE AUX RECEIVER OPERATES ON ANOTHER FREQUENCY.

1-14. TYPICAL LAYOUT OF RADIO SET AN/VRC-12 AND INTERCOM SET



AN/VIC-1 FOR VINSON COMSEC USE IN THE M1 ABRAMS TANK.

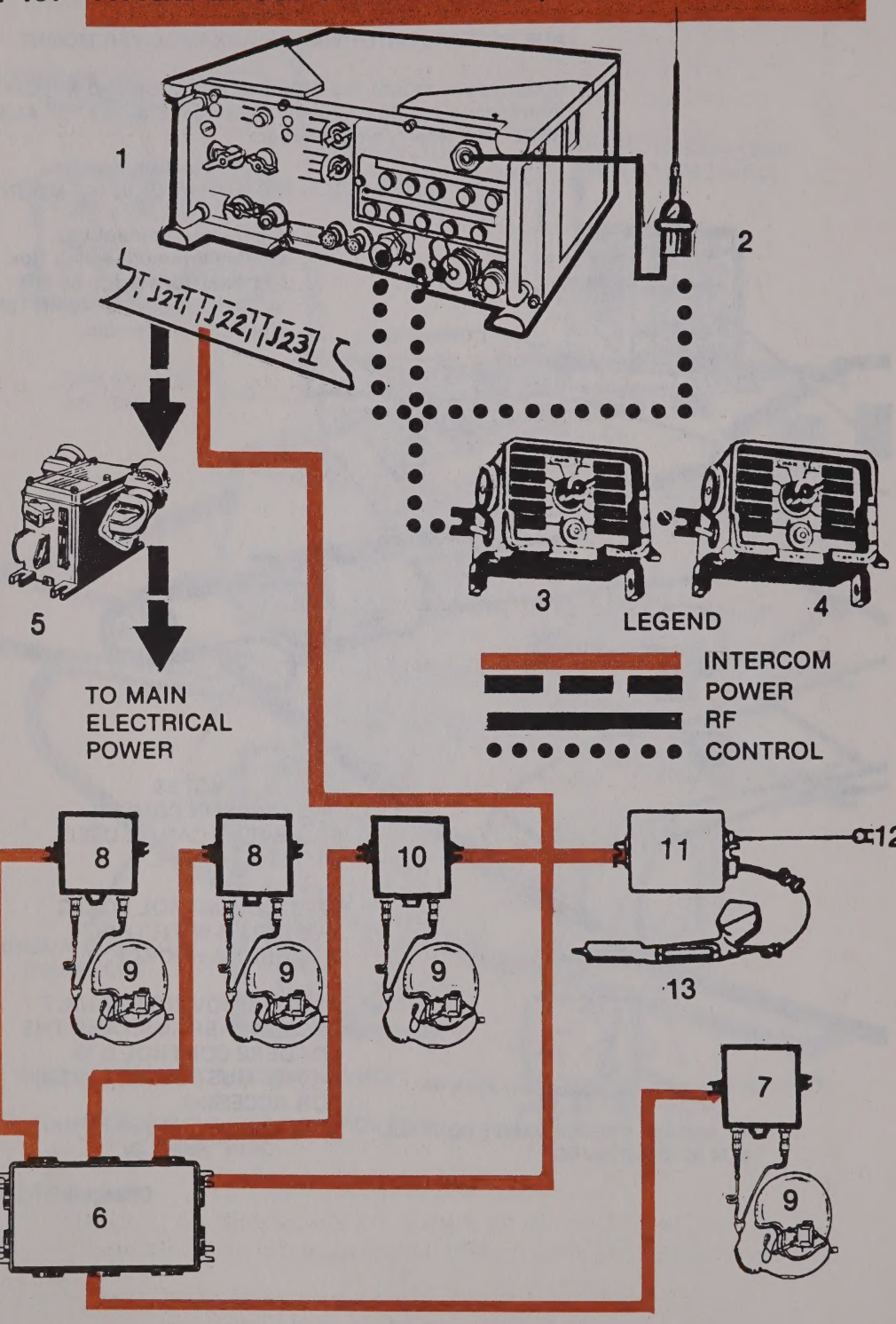


M1 ABRAMS CREWMEMBER'S CONTROL BOX (C-10456(*)/VRC

NOTES

1. ONLY VINSON COMSEC EQUIPMENT CAN BE USED WITH THE ABOVE.
2. SPECIAL CONTROL BOXES MUST USED WITH THIS M1 ABRAMS HOOKUP.
3. WHEN REMOVING R-T UNIT FROM M1 ABRAMS TANK THE LOADERS CONTROL BOX C-10456 MUST BE REMOVED FOR ACCESS.

1-15. TYPICAL LAYOUT OF RADIO SET AN/VRC-43 AND INTERCOM



SET AN//VIC-1 FOR NESTOR COMSEC USE IN A TRACKED VEHICLE.

1. PUSHBUTTON R-T WITH ITS MOUNT.
   Underside of mount has receptacles J21, J22 and J23.
   Referred to as the "A" RECEIVER-TRANSMITTER when using intercom.

2. PUSHBUTTON R-T ANTENNA.
   One cable feeds rf signals to and from the PUSHBUTTON R-T.
   Other cable controls the circuits in the base of the antenna.

3,4. REMOTE CONTROL BOX (two in tandem).
   Permits changing to any of the ten preset frequencies on the PUSHBUTTON R-T without using the pushbuttons.

5. SUPPRESSOR, ELECTRICAL TRANSIENT.

6. MAIN JUNCTION BOX-AMPLIFIER.

7. COMMANDER'S CONTROL BOX.

8. CREWMEMBER'S CONTROL BOX.

9. DH-132A HELMET.

10. DRIVER'S CONTROL BOX.

11. OUTSIDE CONTROL BOX.

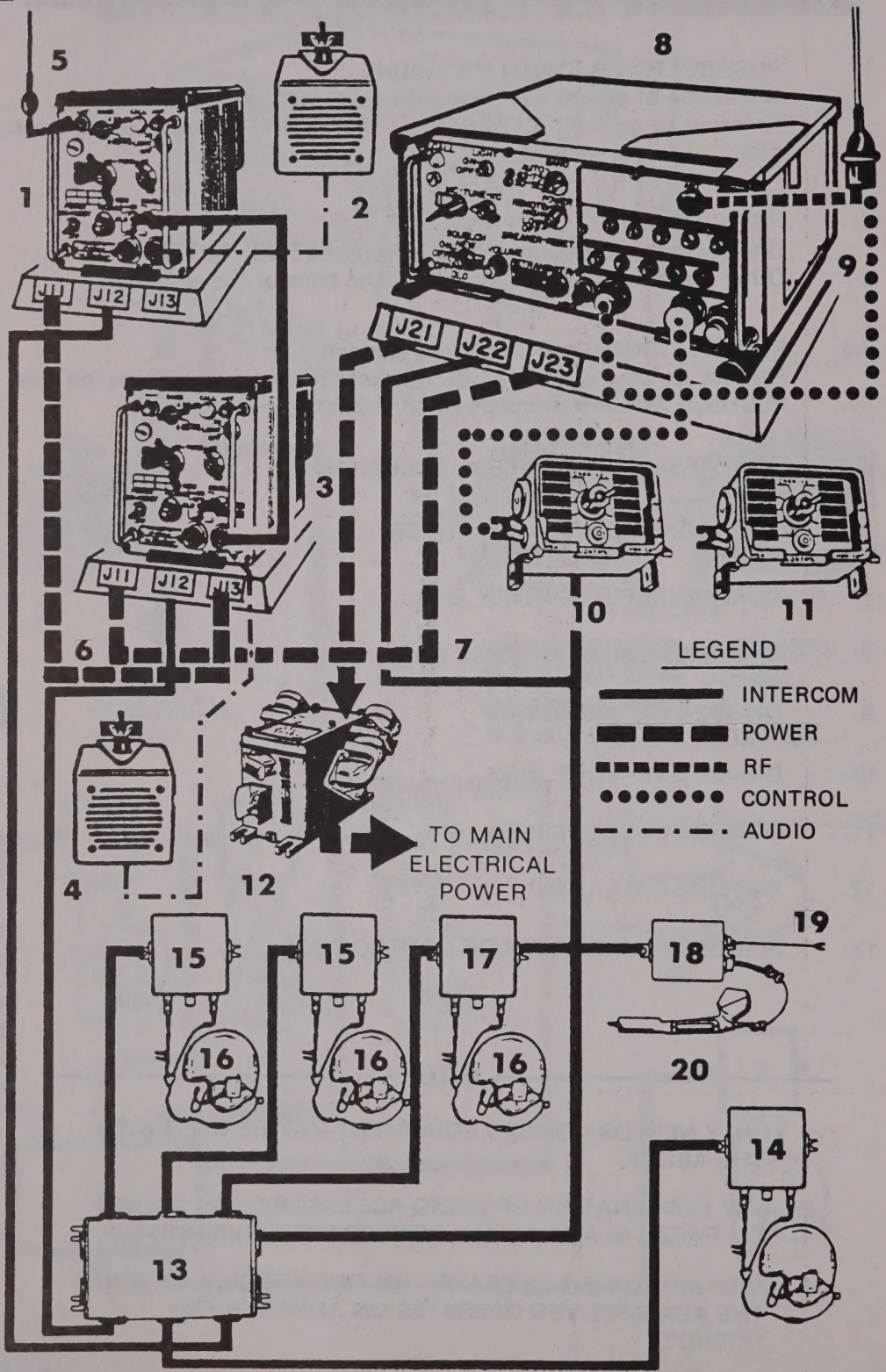
12. OUTSIDE CALL LAMP.

13. HANDSET (part of OUTSIDE CONTROL BOX).

NOTES

1. ONLY NESTOR COMSEC EQUIPMENT MAY BE USED WITH THE ABOVE.
2. ANY COMBINATION OF AUDIO ACCESSORIES AS SHOWN ON PAGES 42 AND 43 MAY BE USED WITH THIS HOOKUP.
3. PUSHBUTTON R-T OPERATES ON ONE FREQUENCY AND THE AUX RECEIVER OPERATES ON ANOTHER FREQUENCY.

1-16. TYPICAL LAYOUT OF RADIO SET AN/VRC-44 AND INTERCOM



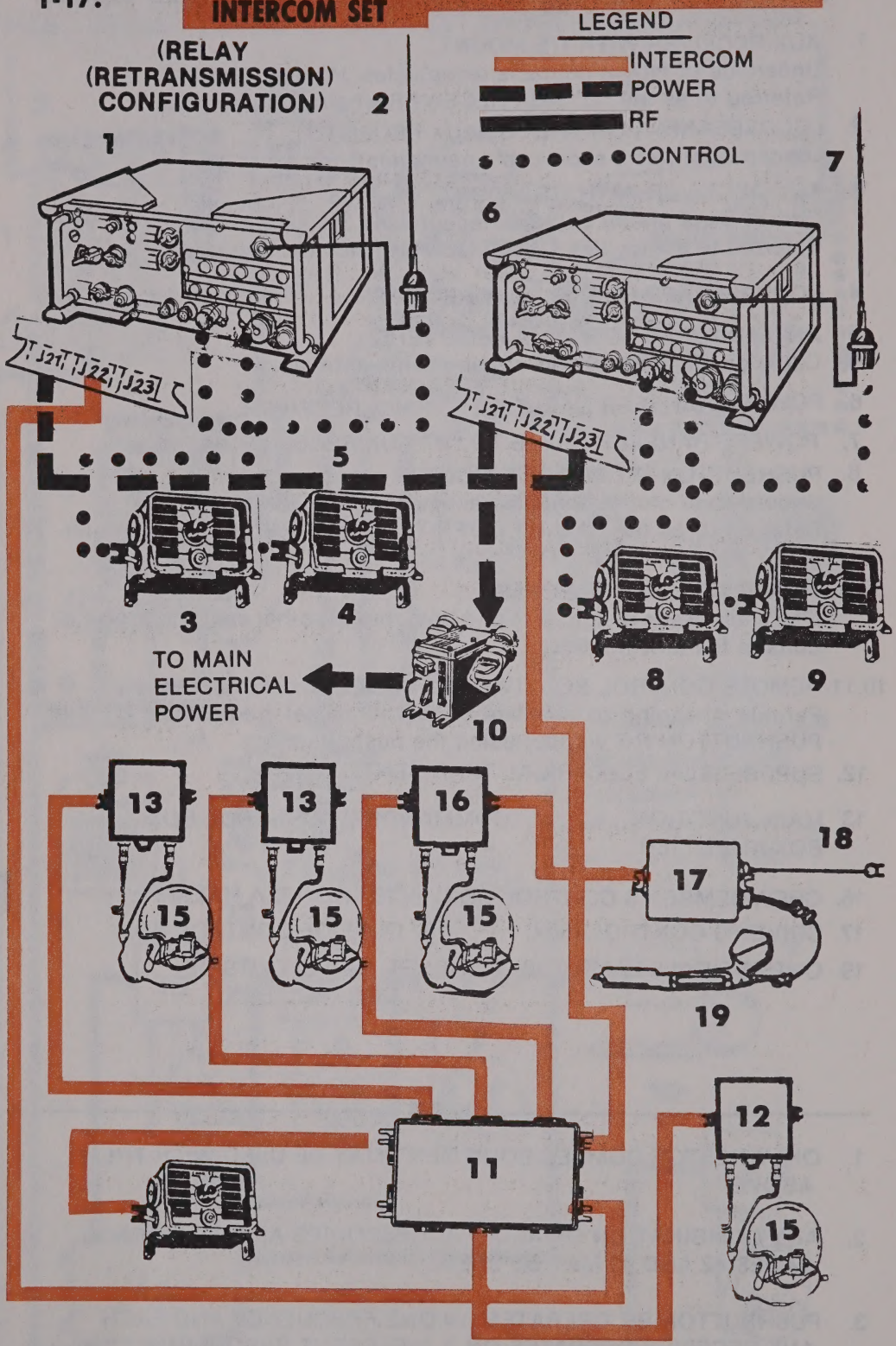
SET AN/VIC-1 FOR NESTOR COMSEC USE IN A TRACKED VEHICLE.

1. AUX RECEIVER WITH ITS MOUNT.
   Underside of mount contains receptacles J11, J12, and J13.
   Referred to as the "C" AUX RECEIVER when using intercom.
2. LOUDSPEAKER FOR THE "C" AUX RECEIVER.
   Loudspeaker has a short cable permanently attached to it.
3. AUX RECEIVER WITH ITS MOUNT.
   Underside of mount contains receptacles J11, J12, and J13.
   Referred to as the "B" AUX RECEIVER when using intercom.
4. LOUDSPEAKER FOR "B" AUX RECEIVER.
5. ANTENNA FOR BOTH AUX RECEIVERS.
   ✱ Cable connections allows sharing same antenna.
6. POWER TRANSFER CABLE TO "C" AUX RECEIVER.
7. POWER TRANSFER CABLE TO "B" AUX RECEIVER.
8. PUSHBUTTON R-T WITH ITS MOUNT.
   Underside of mount contains receptacles J21, J22 and J23.
   Referred to as the "A" RECEIVER-TRANSMITTER when using intercom.
9. PUSHBUTTON R-T ANTENNA.
   One cable feeds rf signals to and from the R-T, other cable controls circuits in the antenna base.
10,11. REMOTE CONTROL BOX (TWO IN TANDEM).
   Permits changing to any one of the 10 preset frequencies on the PUSHBUTTON R-T without using the pushbuttons.
12. SUPPRESSOR, ELECTRICAL TRANSIENT.
13. MAIN JUNCTION BOX-AMPLIFIER.
14. COMMANDER'S CONTROL BOX.
15. CREWMEMBER'S CONTROL BOX.
16. DH-132A HELMET.
17. DRIVER'S CONTROL BOX.
18. OUTSIDE CONTROL BOX.
19. OUTSIDE CALL LAMP.
20. HANDSET. (part of OUTSIDE CONTROL BOX).

NOTES

1. ONLY NESTOR COMSEC EQUIPMENT MAY BE USED WITH THE ABOVE.
2. ANY COMBINATION OF AUDIO ACCESSORIES AS SHOWN ON PAGES 42 AND 43 MAY BE USED.
3. PUSHBUTTON R-T OPERATES ON ONE FREQUENCY AND EACH AUX RECEIVER OPERATES ON A DIFFERENT FREQUENCY.

1-17. TYPICAL LAYOUT OF RADIO SET AN/VRC-45 AND INTERCOM SET



AN/VIC-1 FOR RADIO RELAY OF SIGNALS USING NESTOR COMSEC EQUIPMENT.

1. PUSHBUTTON R-T WITH ITS MOUNT.
Underside of mount contains receptacles J21, J22 and J23.
Referred to as the "C" RECEIVER-TRANSMITTER.

2. ANTENNA FOR THE "C"RECEIVER-TRANSMITTER.
One cable feeds signal to and from the R-T, other cable controls circuits in the antenna base.

3,4. REMOTE CONTROL BOXES (TWO IN TANDEM).
Permits changing to any of the ten preset frequencies on the PUSHBUTTON R-T without using the pushbuttons.

5. POWER TRANSFER CABLE.
Connects the "A" RECEIVER-TRANSMITTER to the "C" RECEIVER-TRANSMITTER for power.

6. PUSHBUTTON R-T WITH ITS MOUNT.
Underside of mount contains receptacles J21, J22 and J23.
Referred to as the "A" RECEIVER-TRANSMITTER.

7. ANTENNA FOR THE "A" RECEIVER-TRANSMITTER.

8,9. REMOTE CONTROL BOXES (TWO IN TANDEM).

10. SUPPRESSOR, ELECTRICAL TRANSIENT.

11. MAIN JUNCTION BOX, AMPLIFIER.

12. COMMANDER'S CONTROL BOX.

13. CREWMEMBER'S CONTROL BOX.

14. RADIO RELAY BOX (C-2299/VRC).

15. DH-132A HELMET.

16. DRIVER'S CONTROL BOX.

17. OUTSIDE CONTROL BOX.

18. OUTSIDE CALL LAMP.

19. HANDSET (PART OF OUTSIDE CONTROL BOX).

NOTES

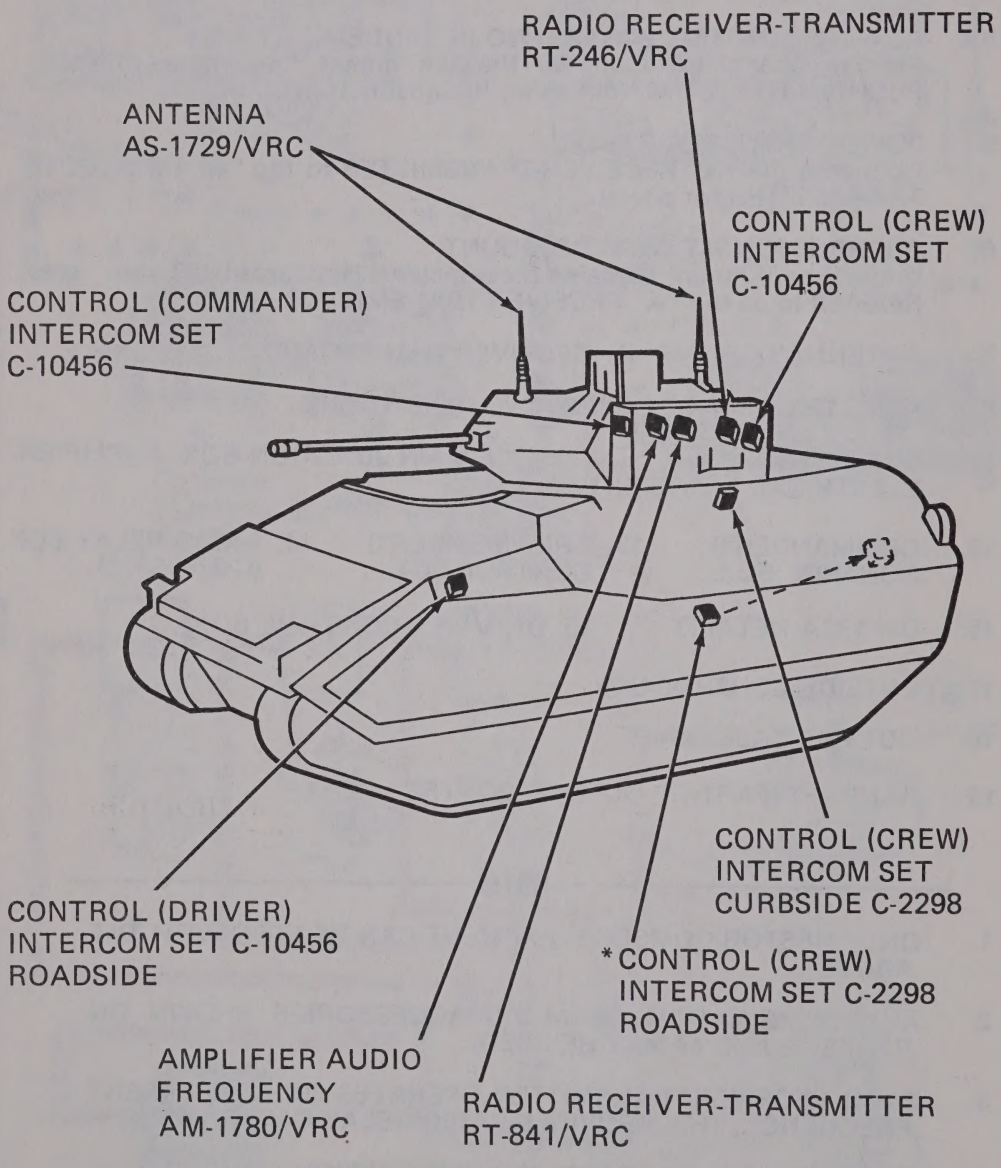
1. ONLY NESTOR COMSEC EQUIPMENT CAN BE USED WITH THE ABOVE.

2. ANY COMBINATION OF AUDIO ACCESSORIES SHOWN ON PAGES 42 AND 44 MAY BE USED.

3. EACH RECEIVER-TRANSMITTER OPERATES ON A DIFFERENT FREQUENCY, THIS PROVIDES RADIO RELAY CAPABILITY.

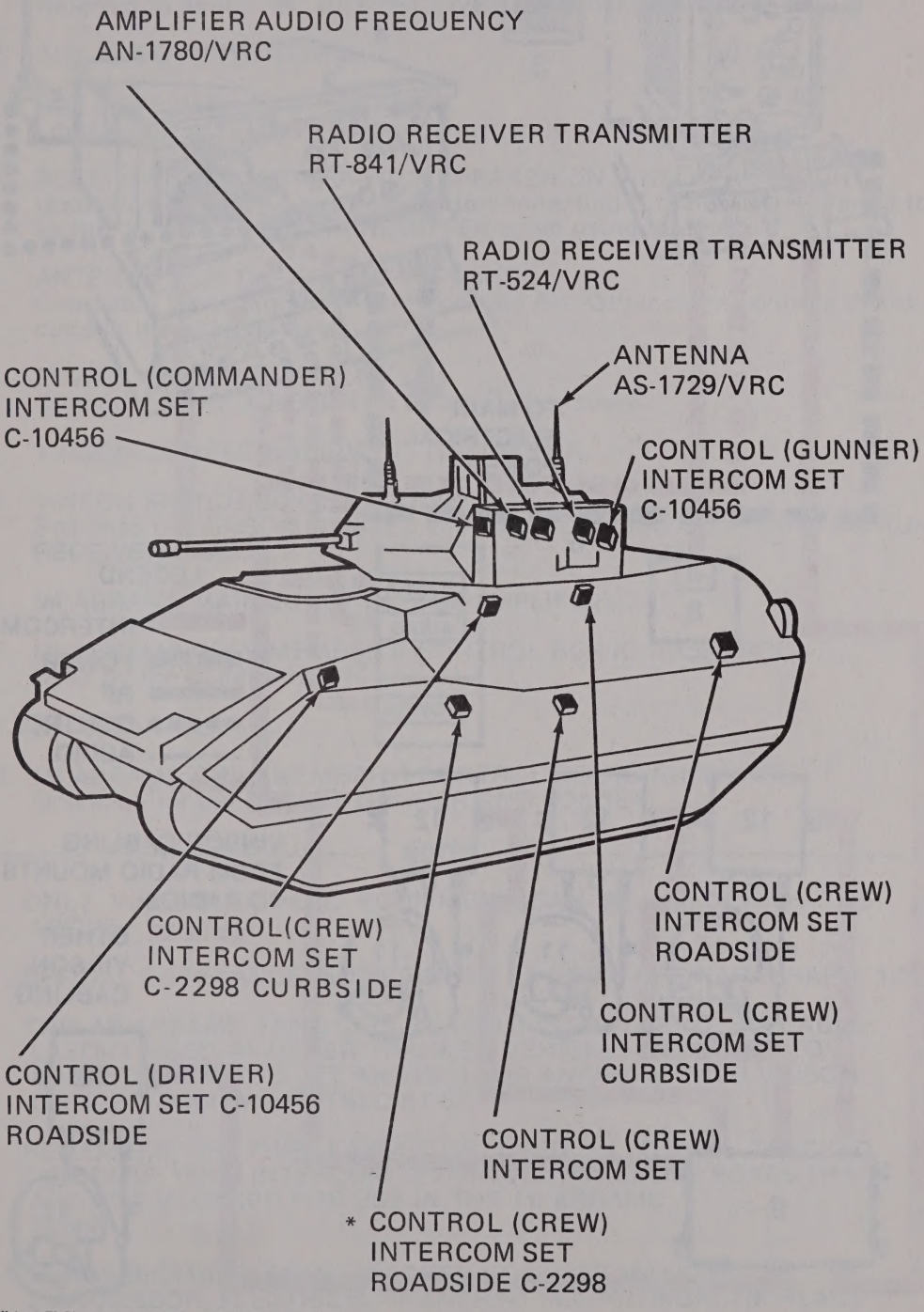
4. FOR RADIO RELAY OF SIGNALS USING VISION COMSEC EQUIPMENT, REFER TO TYPICAL LAYOUT OF RADIO SET AN/VRC-49.

1-18a. TYPICAL LAYOUT AN/VRC-46, -64 CFV M-3, M-3A1(*)



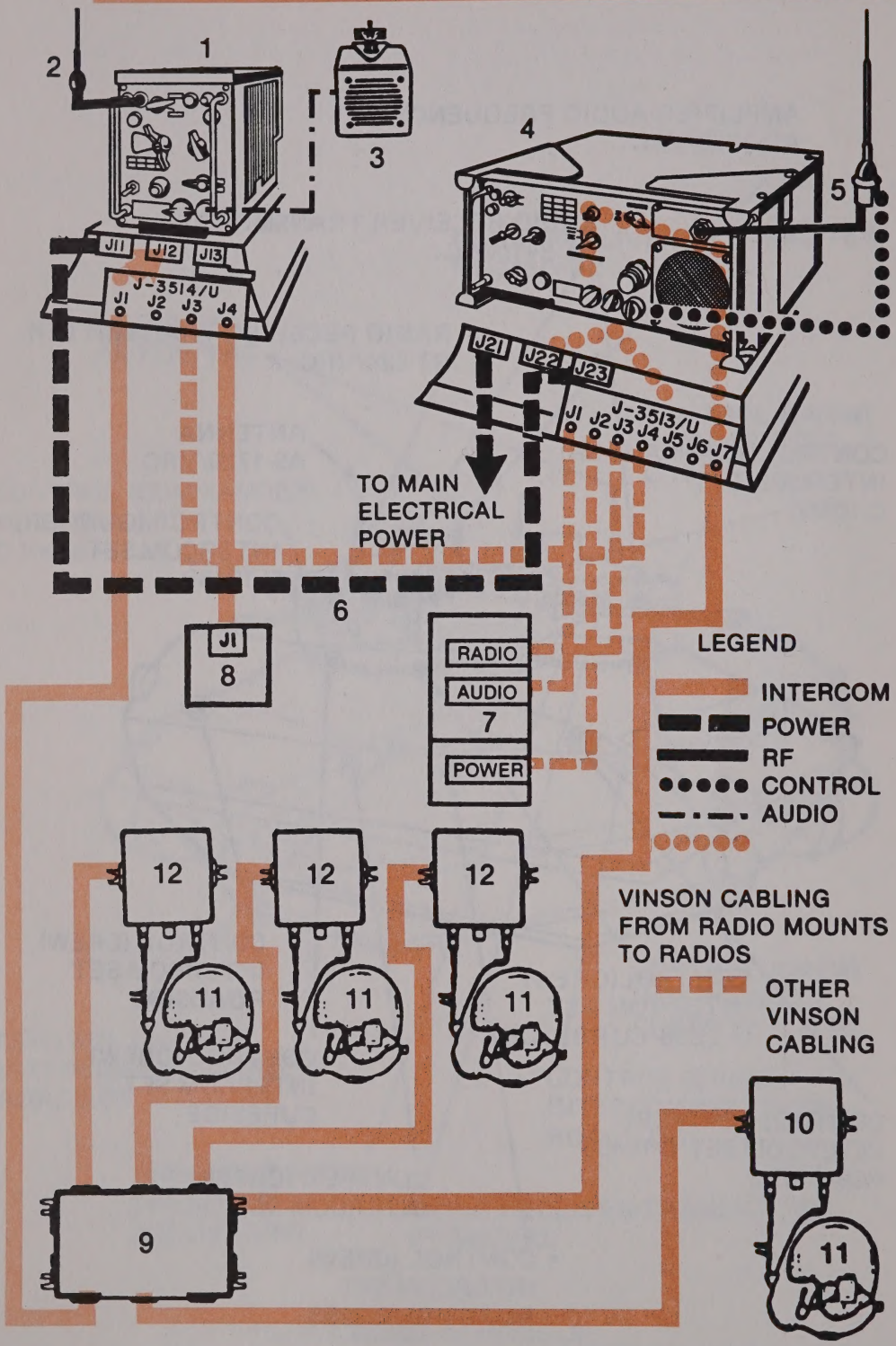
*DIFFERENCE IN MODELS:
THIS C-2298 MOVED TO REAR
FIREWALL IN M3A1. ONLY DIFF.

1-18b. TYPICAL LAYOUT AN/VRC-46, -64 IFV M2, M2A1(*)



*DIFFERENCE IN MODELS:
THIS C-2298 ELIMINATED
IN M2A1. ONLY DIFF.

1-19. TYPICAL LAYOUT OF RADIO SET AN/VRC-47 AND INTERCOM



SET AN/VIC-1 WITH VINSON COMSEC EQUIPMENT IN THE M1 ABRAMS TANK

1. AUX RECEIVER WITH VINSON AUX RECEIVER MOUNT.
   Underside of mount has MINI-SUPPRESSOR and wired-in Interconnecting Box J3514/U.
   Referred to as the "B" AUX RECEIVER when using intercom.

2. AUX RECEIVER ANTENNA.

3. AUX RECEIVER LOUDSPEAKER.
   Loudspeaker has a short cable permanently connected to it.

4. RECEIVER-TRANSMITTER WITH SPEAKER ON VINSON R-T MOUNT.
   Underside of mount has wired-in Interconnecting Box J-3513/U. Referred to as the "A" RECEIVER-TRANSMITTER when using intercom.

5. ANTENNA FOR THE R-T WITH SPEAKER.
   One cable feeds signals to and from the R-T. Other cable controls the circuits in the antenna base.

6. POWER TRANSFER CABLE.
   Connects the AUX RECEIVER to the R-T for power.

7. VINSON COMSEC EQUIPMENT (TSEC/KY-57).

8. VINSON SWITCH BOX (SA-2171/VRC).
   Switches the VINSON COMSEC equipment (TSEC/KY-57) to either the AUX RECEIVER or the R-T.

9. M1 ABRAMS MAIN JUNCTION BOX-AMPLIFIER.

10. M1 ABRAMS CREWMEMBER'S CONTROL BOX (C-10456/VRC).
    Used by the COMMANDER.

11. DH-132A HELMET.

12. M1 ABRAMS CREWMEMBER'S CONTROL BOX (C-10456/VRC).
    One each for the DRIVER, GUNNER AND LOADER.

NOTES

1. ONLY VINSON COMSEC EQUIPMENT CAN BE USED WITH THE ABOVE.

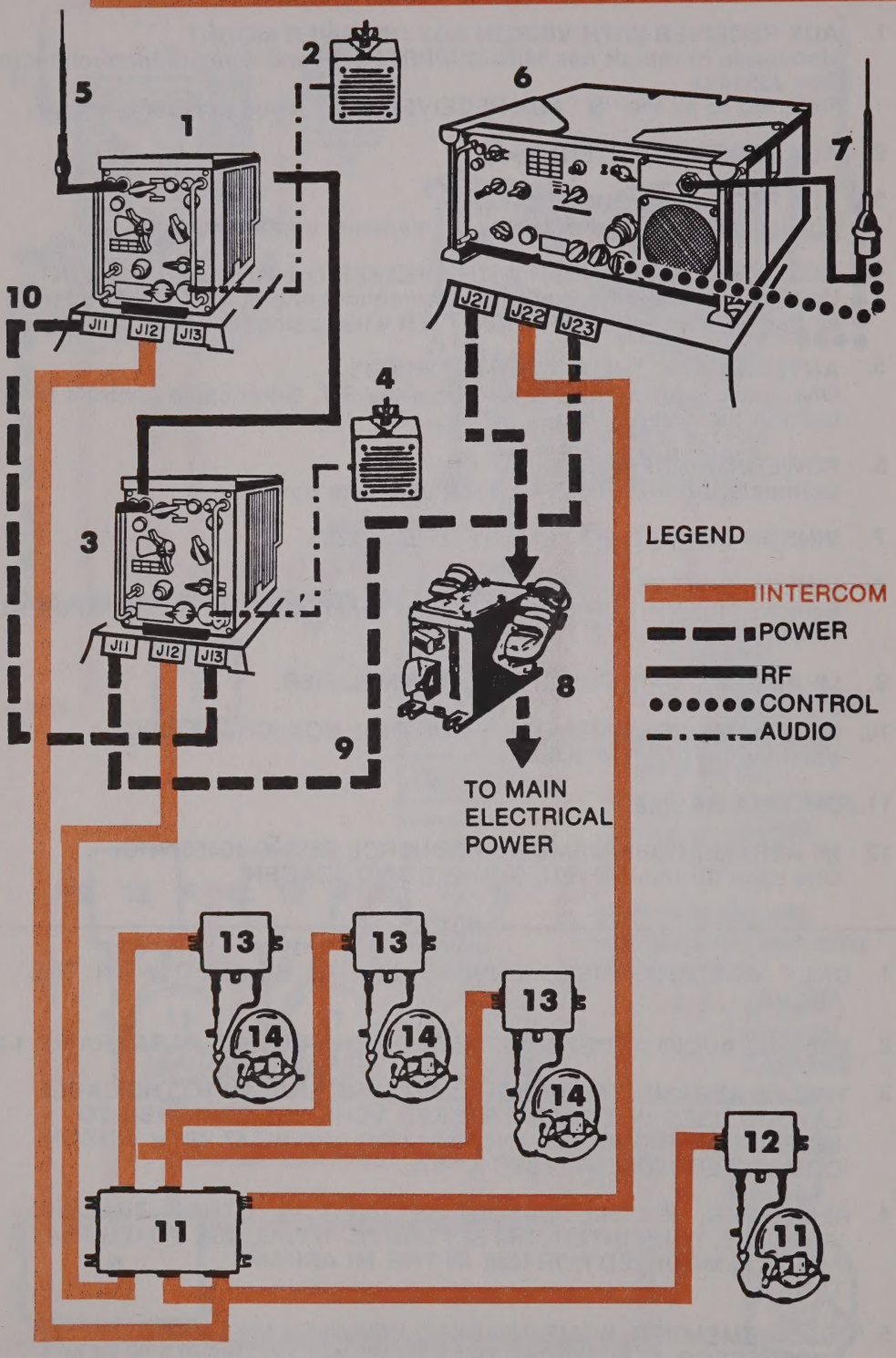
2. SPECIAL AUDIO ACCESSORIES MUST BE USED. SEE PARAGRAPH 1-25.

3. THIS M1 ABRAMS TANK CABLE LAYOUT IS SIMILAR TO THE CABLE LAYOUT USED IN OTHER TRACKED VEHICLES DESIGNED TO USE EITHER RADIO SET AN/VRC-12 OR AN/VRC-47 WITH VINSON COMSEC EQUIPMENT (TSEC/KY-57).

4. REMEMBER, IF THIS LAYOUT IS USED IN OTHER TRACKED VEHICLES, YOUR INTERCOM SET (AN/VIC-1) WILL USE BOXES THAT ARE NOT MODIFIED FOR USE IN THE M1 ABRAMS TANK.

5. ALSO REMEMBER, SOME TRACKED VEHICLES MAY USE SUPPRESSOR, ELECTRICAL TRANSIENT (MX-7777B/GRC) IN PLACE OF THE MINI-SUPPRESSOR.

1-20. TYPICAL LAYOUT OF RADIO SET AN/VRC-48 AND INTERCOM



SET AN/VIC-1 FOR NESTOR COMSEC USE IN A TRACKED VEHICLE

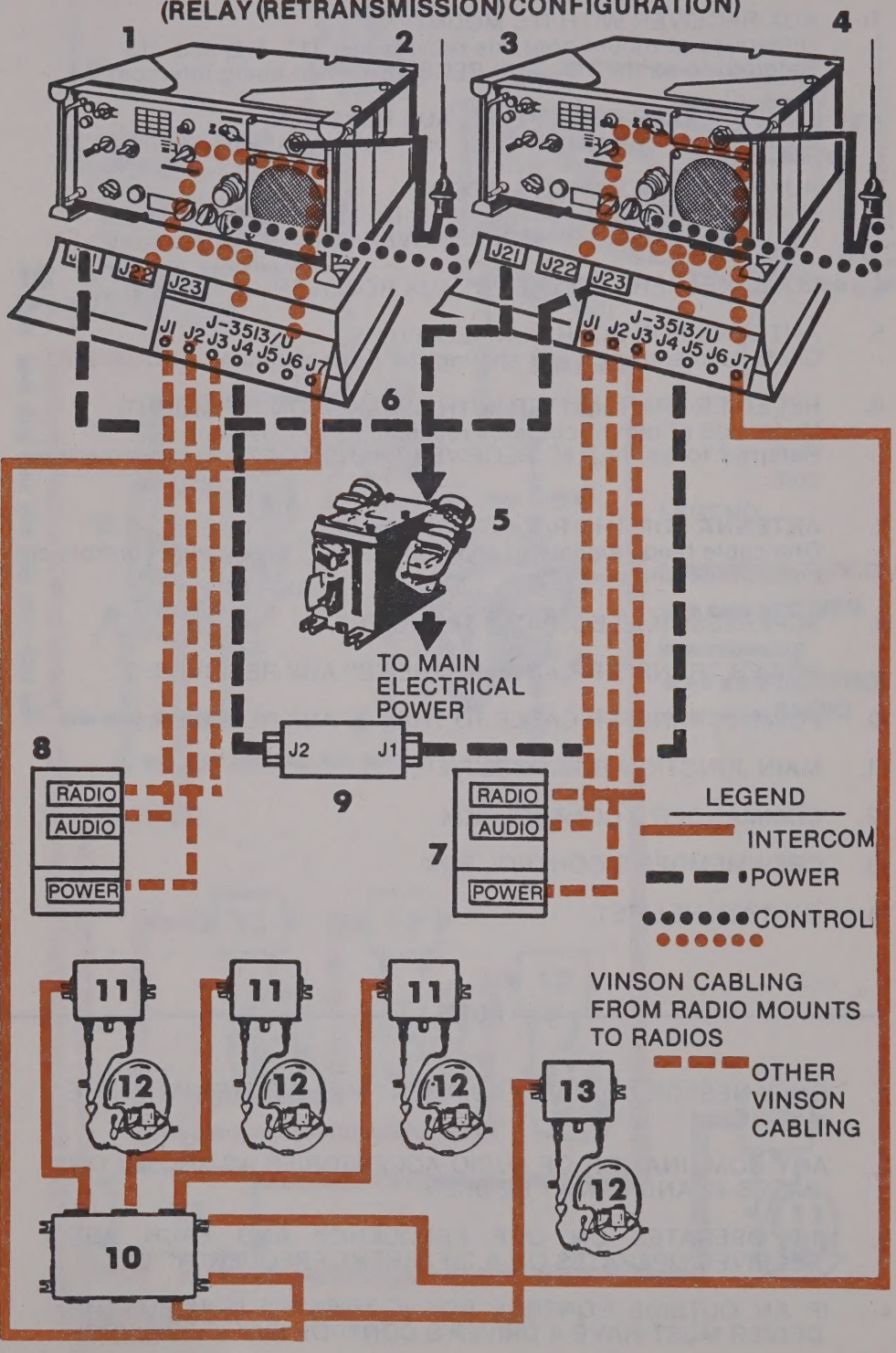
1. AUX RECEIVER WITH ITS MOUNT.
   Underside of mount contains receptacles J11, J12, and J13.
   Referred to as the "C" AUX RECEIVER when using intercom.
2. LOUDSPEAKER FOR THE "C" AUX RECEIVER.
   Loudspeaker has a short cable permanently attached to it.
3. AUX RECEIVER WITH ITS MOUNT.
   Underside of mount contains receptacles J11, J12 and J13.
   Referred to as the "B" AUX RECEIVER when using intercom.
4. LOUDSPEAKER FOR THE "B" AUX RECEIVER.
5. ANTENNA FOR BOTH AUX RECEIVERS.
   Cable connections allow sharing the same antenna.
6. RECEIVER-TRANSMITTER WITH SPEAKER ON ITS MOUNT.
   Underside of mount contains receptacles J21, J22 and J23.
   Referred to as the "A" RECEIVER-TRANSMITTER when using intercom.
7. ANTENNA FOR THE R-T WITH SPEAKER.
   One cable feeds signals to and from the R-T, other cable controls circuits in the antenna base.
8. SUPPRESSOR, ELECTRICAL TRANSIENT.
9. POWER TRANSFER CABLE TO THE "B" AUX RECEIVER.
10. POWER TRANSFER CABLE TO THE "C" AUX RECEIVER.
11. MAIN JUNCTION BOX-AMPLIFIER.
12. COMMANDER'S CONTROL BOX.
13. CREWMEMBER'S CONTROL BOX.
14. DH-132A HELMET.

NOTES

1. ONLY NESTOR COMSEC EQUIPMENT MAY BE USED WITH THE ABOVE.
2. ANY COMBINATION OF AUDIO ACCESSORIES AS SHOWN ON PAGES 42 AND 43 MAY BE USED.
3. R-T OPERATES ON ONE FREQUENCY AND EACH AUX RECEIVER OPERATES ON A DIFFERENT FREQUENCY.
4. IF AN OUTSIDE CONTROL BOX (C-2296/VRC) IS USED, THE DRIVER MUST HAVE A DRIVER'S CONTROL BOX (C-2296/VRC).

1-21. TYPICAL LAYOUT OF RADIO SET AN/VRC-49 AND INTERCOM SET

(RELAY (RETRANSMISSION) CONFIGURATION)



AN/VIC-1 FOR RADIO RELAY OF SIGNALS USING VINSON COMSEC EQUIPMENT.

1. RECEIVER-TRANSMITTER WITH SPEAKER ON VINSON R-T MOUNT. Underside of mount has receptacles J21, J22, J23 and wired-in Interconnecting Box J-3513/U. Referred to as the "C" RECEIVER-TRANSMITTER.
2. ANTENNA FOR THE "C" RECEIVER-TRANSMITTER. One cable feeds signal to and from the R-T, other cable controls circuits in the antenna base.
3. RECEIVER-TRANSMITTER WITH SPEAKER ON VINSON R-T MOUNT. Underside of mount has receptacles J21, J22, J23 and wired-in Interconnecting Box J-3513/U. Referred to as the "A" RECEIVER-TRANSMITTER.
4. ANTENNA FOR THE "A" RECEIVER-TRANSMITTER.
5. SUPPRESSOR, ELECTRICAL TRANSIENT.
6. POWER TRANSFER CABLE. Connects the "A" RECEIVER-TRANSMITTER to the "C" RECEIVER-TRANSMITTER for power.

7,8. VINSON COMSEC EQUIPMENT.

9. VINSON RELAY BOX (C-10734/VRC). When using VINSON COMSEC equipment, this box must be used in place of the RADIO RELAY BOX (C-2299/VRC).
10. MAIN JUNCTION BOX-AMPLIFIER.
11. CREWMEMBER'S CONTROL BOX.
12. DH-132A HELMET
13. COMMANDER'S CONTROL BOX.

NOTES

1. ONLY VINSON COMSEC EQUIPMENT CAN BE USED WITH THE ABOVE.
2. THE ABOVE TYPICAL LAYOUT APPLIES TO ALL VINSON RADIO RELAY HOOKUPS EXCEPT THOSE THAT MAY BE USED IN THE M1 ABRAMS TANK. IF A VINSON RADIO RELAY HOOKUP IS TO BE MADE UP IN THE M1 ABRAMS , YOU MUST USE MODIFIED INTERCOM SET AN/VIC-1 COMPONENTS.
3. EACH RECEIVER-TRANSMITTER OPERATES ON A DIFFERENT FREQUENCY. THIS PROVIDES RADIO RELAY (RETRANSMISSION) CAPABILITY.
4. FOR RADIO RELAY OF SIGNALS USING NESTOR COMSEC EQUIPMENT, REFER TO THE TYPICAL LAYOUT OF RADIO SET AN/VRC-45.

1-22. PERFORMANCE DATA USING THE EXTENDED RANGE ANTENNA (RC-292 OR OE-254/GRC)

- MAXIMUM ERECTED HEIGHT IS APPROXIMATELY 41 FEET.
- ANTENNA ERECTION TIME FOR A TEAM OF TWO IS 15 MINUTES.
- COMM-ELECTRONICS ORG MAINT SHOULD PROVIDE THE EXTRA LONG CABLES NEEDED TO MAKE CONNECTIONS TO THE R-T.
- APPROXIMATE RANGE BETWEEN TWO AN/VRC-12 SERIES OF RADIOS WITH BOTH RADIOS USING THE EXTENDED RANGE ANTENNA.

  36 miles over average terrain.

  30 miles over difficult terrain.

- APPROXIMATE RANGE BETWEEN ONE AN/VRC-12 RADIO SET USING THE EXTENDED RANGE ANTENNA AND THE OTHER AN/VRC-12 RADIO SET USING A WHIP ANTENNA.

  25 miles over average terrain.

  20 miles over difficult terrain.

1-23 PERFORMANCE DATA USING THE TELESCOPING ANTENNA MAST (AB-903/G)

- EITHER THE COMPACT ANTENNA OR ROUND BASE ANTENNA IS MOUNTED ATOP THE TELESCOPING ANTENNA MAST (AB-903/G).
- THE TELESCOPING ANTENNA MAST (AB-903/G) CAN BE HAND-CRANKED FROM 6 FEET TO APPROXIMATELY 30 FEET.

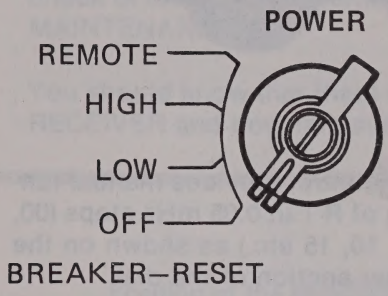
  Time required to hand-crank is approximately 25 seconds.

- THE TELESCOPING ANTENNA MAST (AB-903/G) CAN BE ATTACHED TO THE SIDE OF A VEHICLE OR MOUNTED TO THE GROUND.

2-3. POWER SWITCH ON PUSHBUTTON R-T (RT-246(*)/VRC)

POWER switch has 4 positions.

OFF BREAKER RESET Removes power from the R-T and resets circuit breakers (inside the R-T) if they are tripped.



LOW turns on dc power to PUSHBUTTON R-T; when R-T is keyed it transmits on low rf power (0.5 to 8 watts).

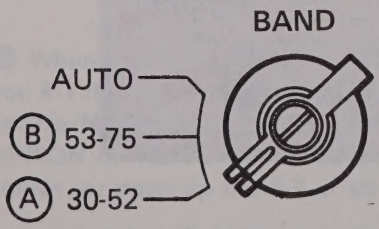
HIGH turns on dc power to PUSHBUTTON R-T; when R-T is keyed it transmits on high rf power (30 to 65 watts).

REMOTE transfers control of dc power and selection of R-T frequency to the REMOTE CONTROL BOX (C-2742/VRC) when it is connected to the REMOVE receptacle on the R-T.

2-4. BAND SWITCH ON PUSHBUTTON R-T (RT-246(*)/VRC)

BAND switch has 3 positions.

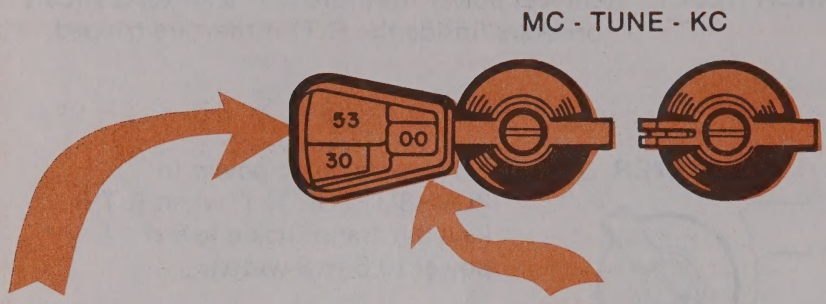
(A) 30-52 position sets up R-T circuits for manual tuning band A (30.00 mHz to 52.95 mHz).



(B) 53-75 position sets up R-T circuits for manual tuning band B (53.00 mHz to 75.95 mHz).

AUTO position permits automatic tuning of the PUSHBUTTON R-T when you use the pushbuttons.

2-5. MC-TUNE-KC CONTROLS FOR MANUAL TUNING OF PUSHBUTTON R-T (RT-246(*)/VRC)



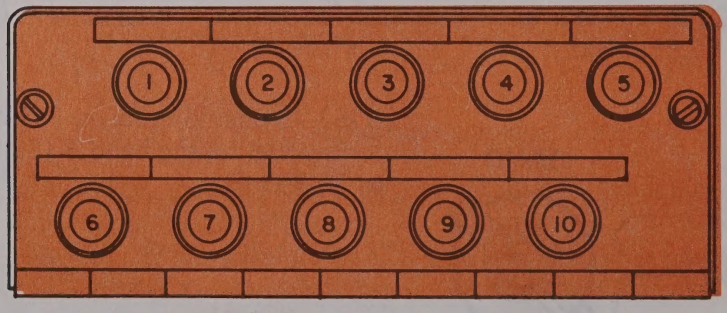
MC control provides manual tuning of R-T in 1 mHz steps (30, 31, 53, 54 etc.) as shown on the outer section of the dial.

KC control provides manual tuning of R-T in 0.05 mHz steps (00, 05, 10, 15 etc.) as shown on the inner section of the dial.

NOTE:

A shutter covers the MC numbers of the BAND not being used.

2-6. PUSHBUTTONS ON PUSHBUTTON R-T (RT-246(*)/VRC)



Any one of 10 preset channels frequencies for the PUSHBUTTON R-T can be selected by pressing the proper PUSHBUTTON.

2-30. R-T X-MODE-NORMAL SWITCH

Every R-T and AUX RECEIVER has an X-MODE-NORMAL switch inside the radio.

CAUTION

An operator is NOT allowed to open any R-T or AUX RECEIVER to check or change the position of this switch. This is a job for C-E ORG MAINTENANCE.

BUT

You should know that there is such a switch inside every R-T and AUX RECEIVER and how this switch affects your communications.

Position of the X-MODE-NORMAL switch inside your R-T.
FOR ALL COMMUNICATIONS, THE SWITCH IS LEFT IN X-MODE.

and

- When no VINSON or NESTOR cables are connected to your R-T X-MODE receptable, you can only communicate in PLAIN (not secure).

BUT

Your X-MODE cover on the R-T X-MODE receptacle must be tightly screwed on.

NOTE:

The X-MODE cover has wiring which allows your R-T to operate PLAIN (NORMAL) when VINSON or NESTOR cables are NOT connected to your R-T X-MODE receptacle.

- When you have VINSON or NESTOR COMSEC equipment connected to you R-T through the X-MODE receptacle, you can communicate PLAIN (not secure/NORMAL) or CIPHER (secure/X-MODE) by using the controls on the VINSON or NESTOR COMSEC equipment. You do not have to disconnect cables, or open up the R-T or screw on the X-MODE cover.

2-31. AUX RECEIVER X-MODE NORMAL SWITCH

Position of the X-MODE-NORMAL switch inside your AUX RECEIVER.

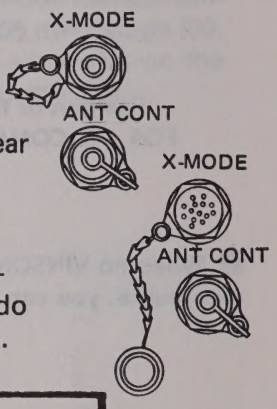
- When any AUX RECEIVER is installed on a VINSON AUX RECEIVER MOUNT:

  The internal X-MODE-NORMAL switch must be in the X-MODE position.

- When any AUX RECEIVER is installed on a regular AUX RECEIVER MOUNT:

  The internal X-MODE-NORMAL switch must be in the NORMAL position.

RT X MODE SWITCH CHECK



Key and talk into the audio accessory. You should hear your sidetone.
While talking remove the X MODE connector cover (with the wire straps in it).
If you do not hear your sidetone now, the X-MODE/-NORMAL switch is in the X-MODE position. If you do hear the sidetone, the switch is in NORMAL position.

CAUTION

REMEMBER, YOU ARE NOT AUTHORIZED TO OPEN AN AUX RECEIVER TO CHECK OR CHANGE THE POSITION OF THE SWITCH.

THIS IS A JOB FOR C-E ORG MAINTENANCE.

- Before you start on a mission, have C-E ORG MAINT check your R-T's and AUX RECEIVER for the proper position of the internal X-MODE-NORMAL switch.

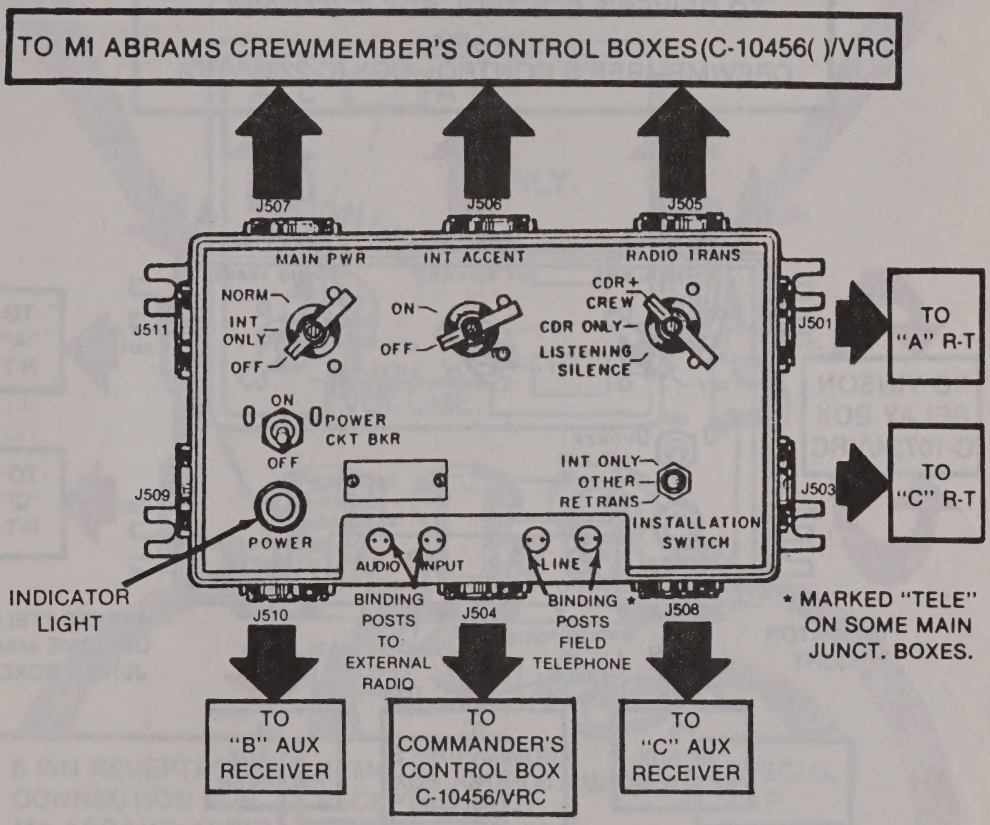
RT X MODE SWITCH CHECK

Turn on AUX RECEIVER.
Set the SQUELCH control in either SQUELCH position.
If a rushing noise is present the X-MODE-NORMAL switch is in the NORMAL position.
If a rushing noise is not present your R-442(*) is faulty—call ORG MAINT.

NOTE:

If your AUX RECEIVER fails the RT X-MODE SWITCH CHECK, CE-ORG Maint will check it for proper position of the X-MODE-NORMAL switch.

2-36. OPERATOR'S CONTROLS, INDICATORS, RECEPTACLES AND CONNECTIONS ON M1 ABRAMS MAIN JUNCTION BOX-AMPLIFIER IN THE M1 ABRAMS TANK WHEN VINSON COMSEC EQUIPMENT MAY BE USED



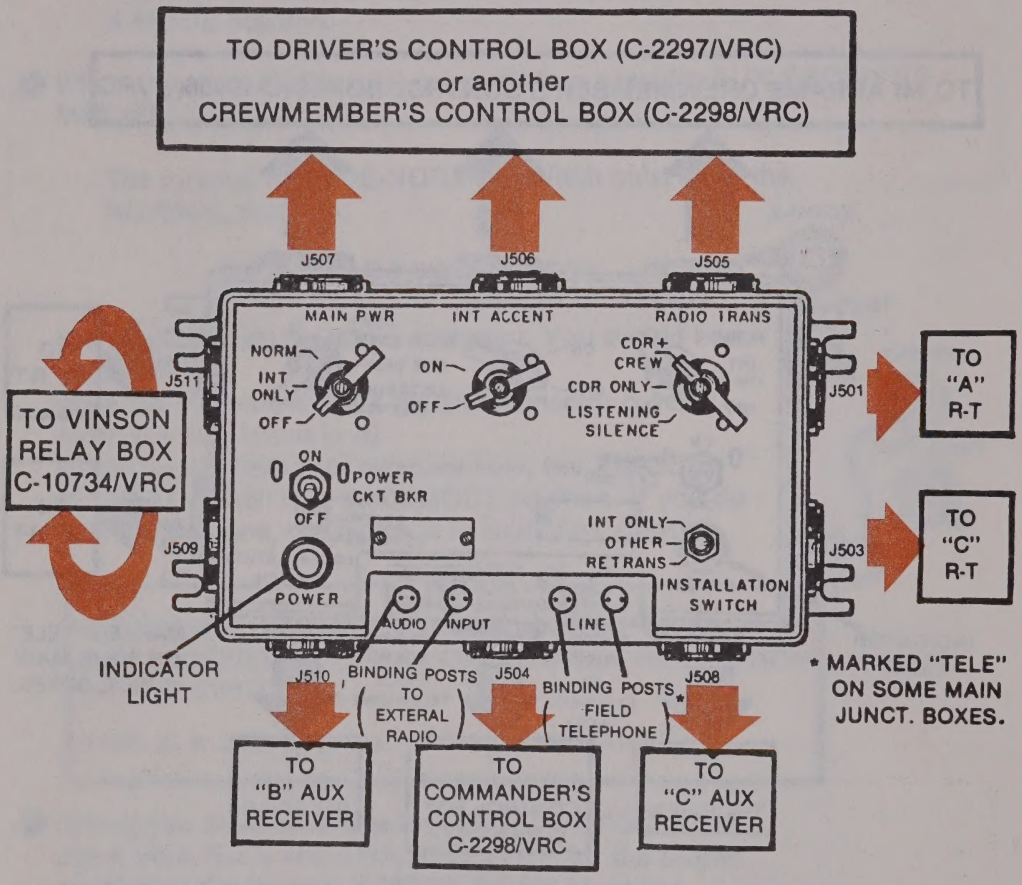
NOTE:

The above shows the typical connections when the M1 ABRAMS MAIN JUNCTION BOX-AMPLIFIER is used in the M1 ABRAMS TANK with CREWMEMBER'S CONTROL BOXES and VINSON COMSEC equipment.

2-37. OPERATOR'S CONTROLS, INDICATORS, RECEPTACLES AND CONNECTORS ON MAIN JUNCTION BOX-AMPLIFIER WHEN VINSON COMSEC EQUIPMENT MAY BE USED

NOTE:

This applies to all hookups involving VINSON COMSEC equipment except the M1 ABRAMS TANK.



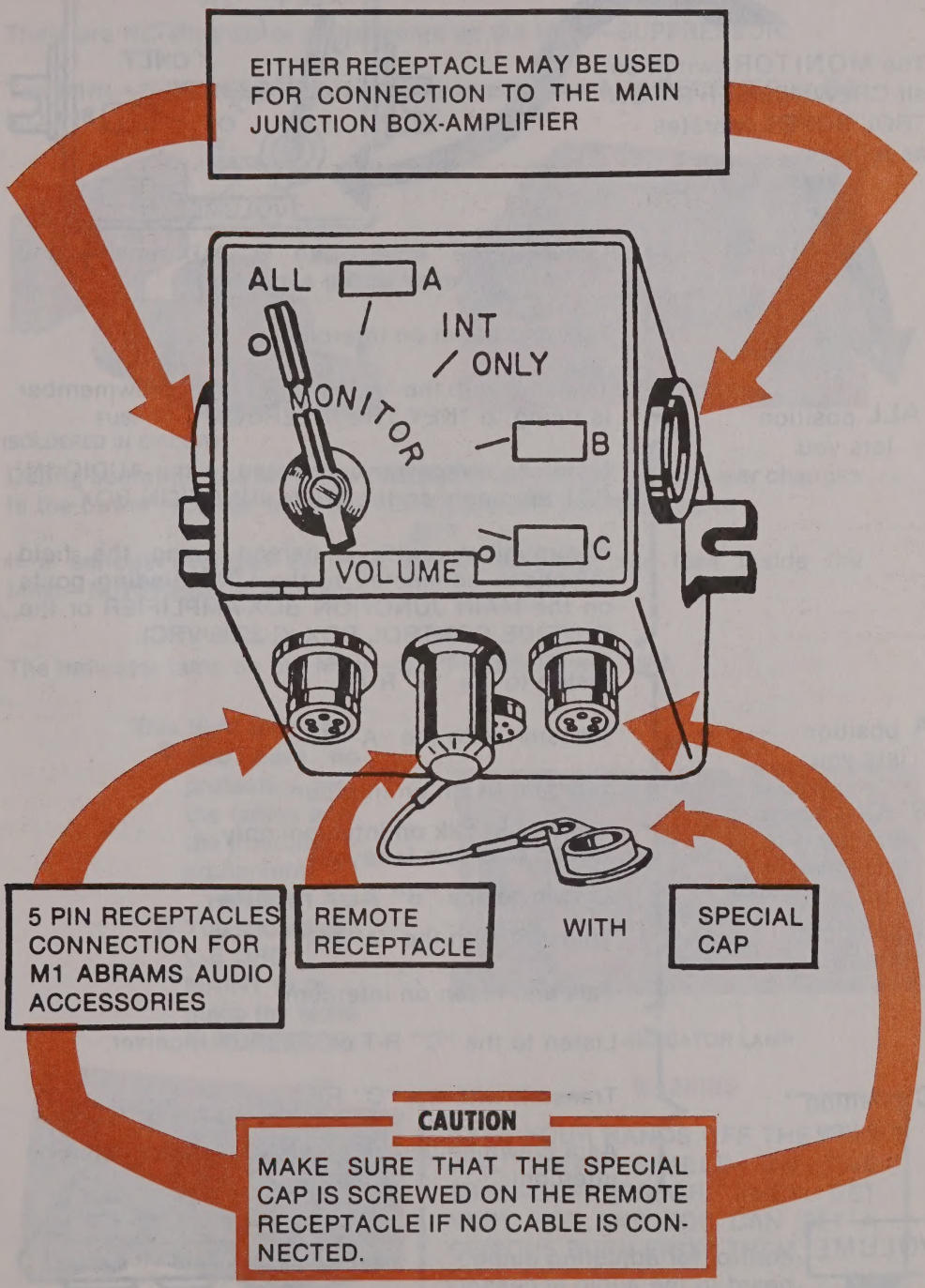
NOTES:

1. You may find fewer crewmember control boxes in some installations, or more in other installations.

2. If an OUTSIDE CONTROL BOX (C-2296/VRC) is not authorized, a driver should have a regular CREWMEMBER'S CONTROL BOX (C-2298/VRC).

2-44. RECEPTACLES ON CREWMEMBER'S CONTROL BOX Continued

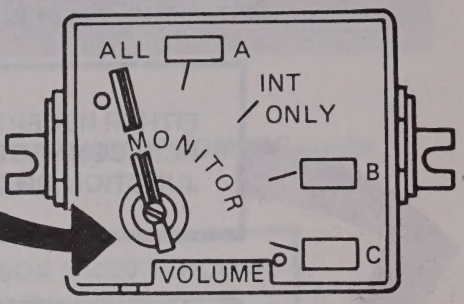
This control box is used in the M1 ABRAMS TANK.



M1 ABRAMS CREWMEMBER'S CONTROL BOX (C-10456( )/VRC)

2-45. OPERATOR'S CONTROLS ON CREWMEMBER'S CONTROL BOX

The MONITOR switch on all CREWMEMBER'S CONTROL BOXES operates as follows:



ALL position lets you

- Listen to the "A" R-T and "B" AUX receiver and "C" AUX receiver at the same time.
- Talk and listen on intercom.
- Transmit with the "A" R-T if no other crewmember is trying to "KEY THE INTERCOM".
- Listen to a receiver connected to the AUDIO INPUT terminals on the MAIN JUNCTION BOX.
- Communicate with a person using the field telephone connected to the LINE binding posts on the MAIN JUNCTION BOX-AMPLIFIER or the OUTSIDE CONTROL BOX (C-2296/VRC).

A position lets you

- Listen to the "A" R-T.
- Transmit with the "A" R-T.
- Talk and listen on intercom.

INT ONLY position lets you

- Listen and talk on intercom only. (When intercom is keyed)

B position lets you

- Listen to the "B" AUX receiver.
- Transmit with the "A" R-T.
- Talk and listen on intercom.

C position lets you

- Listen to the "C" R-T or "C" AUX receiver.
- Transmit with the "C" R-T.
- As a crewmember, you CANNOT talk or listen on intercom.

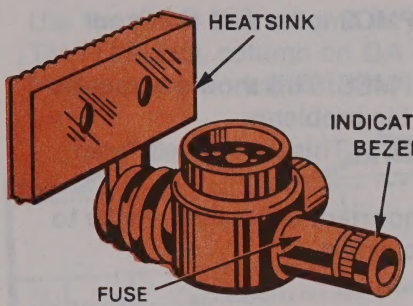
VOLUME control for adjusting audio heard in the audio accessory.

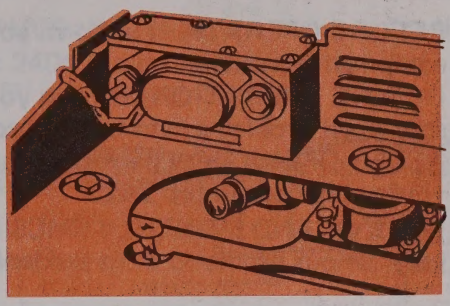
2-50. OPERATOR'S INDICATORS ON THE MINI—SUPPRESSOR

In some installations, the MINI—SUPPRESSOR is used in place of SUPPRESSOR, ELECTRICAL TRANSIENT (MX-7777(*)/VRC).

There are NO controls or adjustments on the MINI—SUPPRESSOR.

The MINI—SUPPRESSOR is installed in either an AUX RECEIVER or R-T MOUNT.





During operation, the MINI-SUPPRESSOR circuits get rid of power changes in the power received from the VEHICLE MAIN POWER source.

BUT

If a serious overload or short circuit happens, the fuse inside the MINI—SUPPRESSOR will blow.

AND

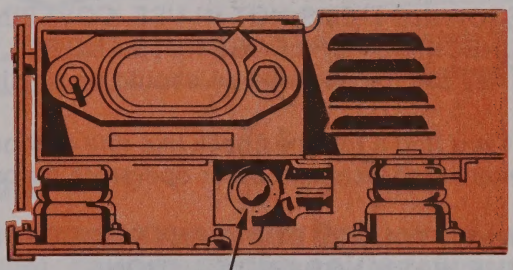
The indicator lamp on the MINI—SUPPRESSOR will light.

This light tells you:

- You have no protection for the radios and the intercom equipment.

AND

- You should call C-E ORG MAINT to replace the MINI-SUPPRESSOR.



WARNING

KEEP YOUR HANDS OFF THE FINS AND HEAT SHIELD ON THE MINI—SUPPRESSOR. THEY GET VERY HOT AND YOU CAN GET A SERIOUS BURN FROM THEM.

SECTION II
PREVENTIVE MAINTENANCE CHECKS AND SERVICES

2-51. GENERAL

To be sure that equipment is always ready for your mission,you must do scheduled PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS).

BEFORE OPERATION,perform your B PMCS to be sure that your equipment is ready to go.
DURING OPERATION,perform your D PMCS. This should help you spot small problems before they become big problems.
AFTER OPERATION,perform yourA PMCS. This should help keep your equipment in top shape.
WEEKLY AND MONTHLY PMCS are important checks you make to keep serious problems from suddenly happening.

If your RT and AUX receiver has not been alined within a year from stamped date, they must be turned into DS maintenance for alinement.

All RT's and AUX receivers in storage must be alined yearly or when put into use from storage, whichever occurs first.

ROUTINE CHECKS like:

CLEANING, DUSTING, WASHING, CHECKING FOR FRAYED CABLES, STOWING ITEMS NOT IN USE, COVERING UNUSED RECEPTACLES AND CHECKING FOR LOOSE NUTS AND BOLTS are not listed as PMCS checks. They are things that you should do anytime you see they must be done.

If you find a routine check like one of those above is listed in your PMCS, it was listed because other operators reported problems with this item.

WHEN YOU ARE DOING ANY PMCS OR ROUTINE CHECKS, KEEP IN MIND THE WARNINGS AND CAUTIONS.

NOTE

The PROCEDURES column in your PMCS Chart instructs you to "CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY". Carefully follow these instructions, and remember, YOU are NOT authorized to open up any radio to make adjustments.

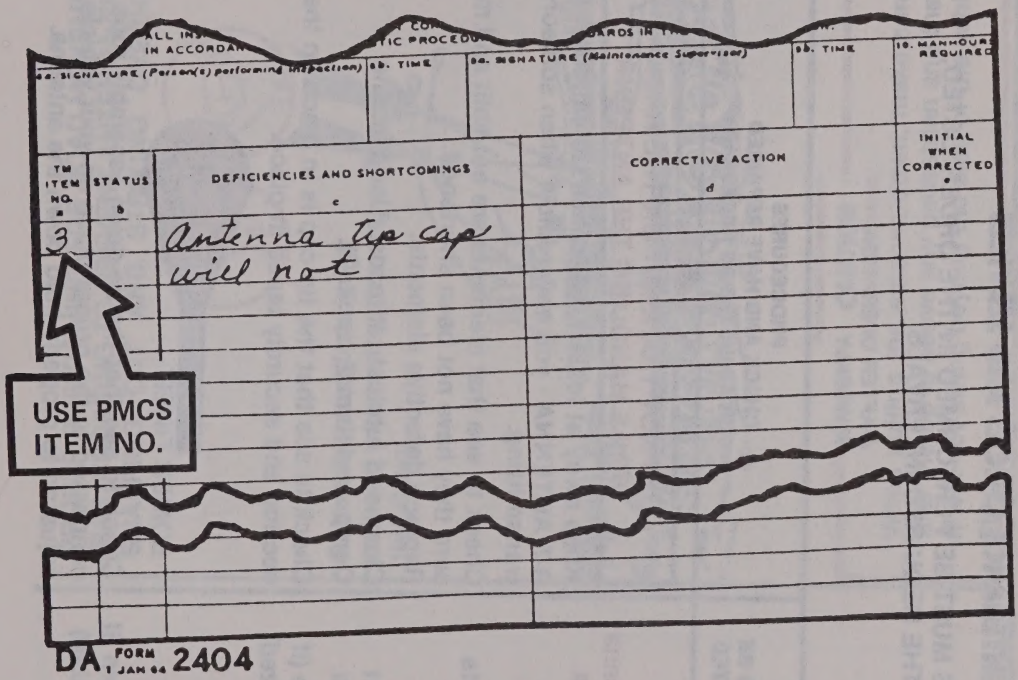
2-52. USE OF DA FORM 2404 WITH PMCS

NOTE

If your equipment must be in operation all the time, check and service those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shut down.

NOTE

Use the ITEM NO. column in your PMCS table to get the numbers for the TM ITEM NO. column on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) when you fill out the form.



NOTE

The heading and other columns on DA Form 2404 should be filled out following the instructions in DA PAM 738-750. The Army Maintenance Management System (TAMMS) and the special instructions from your commander.

CAUTION

REMEMBER: Call C-E ORG MAINTENANCE if you find loose nuts and bolts or any defects in your radios, antennas or control boxes.

NOTE

The PMCS and the criteria for READINESS REPORTING replace Equipment Serviceability Criteria (ESC). Do your PMCS carefully.

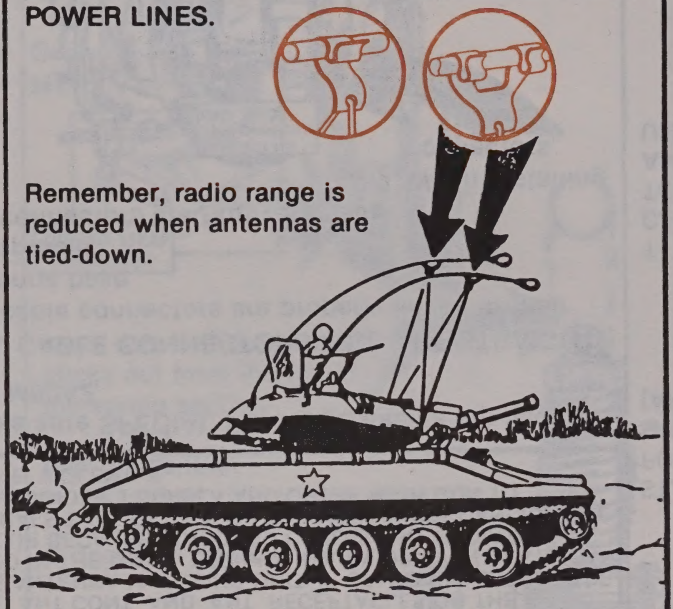
TABLE 2-1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

NOTE: ALL ITEMS MUST BE PERFORMED IN THE ORDER LISTED, AND AT THE REQUIRED INTERVALS.

B-BEFORE OPERATION
D-DURING OPERATION
A-AFTER OPERATION
W-WEEKLY
M-MONTHLY

ITEM NO.	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	FOR READINESS REPORTING EQUIPMENT IS NOT READY AVAILABLE IF:
						All Antenna Systems	**WARNING** DO NOT TRANSMIT ON THE RADIO WHILE HANDLING THE ANTENNA. Keep away at least 7 7/8 inches (20 cm) from the R-T ANTENNA - you never know when someone is transmitting.	
1	*					Elements	Check to see that elements are not split and make sure they have not been shortened. Replace defective elements.	ANY ANTENNA ELEMENT IS SPLIT OR SHORTENED 6 OR MORE INCHES. THREADS ARE STRIPPED.
2					*	Element Threads	Clean and lubricate threads. (Use Silicone Compound item 2, appx. D).	
3	*	*				Tip Cap (if authorized)	Check to see that the tip cap is in place on the top section and securely taped in place.	
4	*	*				Tie-down (if authorized)	Check to see that the tie-down assembly rope is connected to the proper place on your vehicle and adjusted to properly hold down the antenna.	

PROPER POSITIONING FOR ROAD MOVEMENT-/RAIL CROSSING TO PREVENT ANTENNA FROM SNAPPING OUT AND STRIKING OVERHEAD POWER LINES.



Remember, radio range is reduced when antennas are tied-down.

TIE-DOWN is missing or improperly adjusted to hold antenna down while vehicle is in motion.

CAUTION

When pulling the antenna down, make sure that the tip is above any pedestrian and that it will not swing beyond the side of the vehicle.

Table 2-1. PMCS (continued)

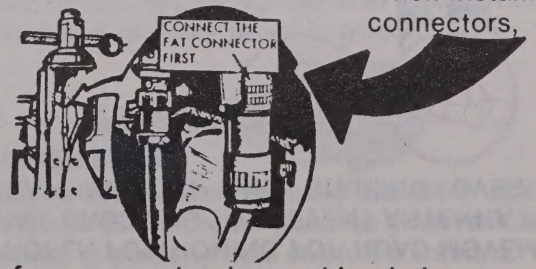
ITEM NO.	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	FOR READINESS REPORT—ING EQUIPMENT IS NOT READY AVAILABLE IF:
						Cables	**WARNING** TANK M60A2 USES SPECIAL PURPOSE CABLES TO CONNECT THE ANT CONT AND ANT RECEPTACLES ON THE R-T TO THE ANTENNA MATCHING UNIT. IF STANDARD CABLES ARE USED IN THE M60A2, SERIOUS INJURY OR EVEN DEATH CAN OCCUR BECAUSE STANDARD CABLES MAY RADIATE SIGNALS THAT CAN CAUSE THE MAIN TURRET AND/OR THE COMMANDER'S CUPOLA AND/ORTHE MAIN GUN TO MOVE VIOLENTLY.	STANDARD CABLES ARE FOUND IN PLACE OF SPECIAL PURPOSE CABLES. (APPLIES TO M60A2 ONLY).
5		✸				Special Purpose Cables	Make sure SPECIAL PURPOSE cables are used in the M60A2.	
6		✸				Cable Connector Pins	ALL CABLE CONNECTORS PINS ARE STRAIGHT. All cable connectors are properly keyed in their antenna base receptacle. All connectors are firmly in place. When installing connectors,  	THE THIN CONNECTOR CANNOT BE CONNECTED TO THE BASE OF THE R-T ANTENNA MATCHING UNIT.
	✸	✸	✸			Cables	Check for cuts, cracks, damaged insulation.	INSULATION OR CABLE IS CRACKED, CUT OR DAMAGED.

TABLE 2-1. PMCS (continued)

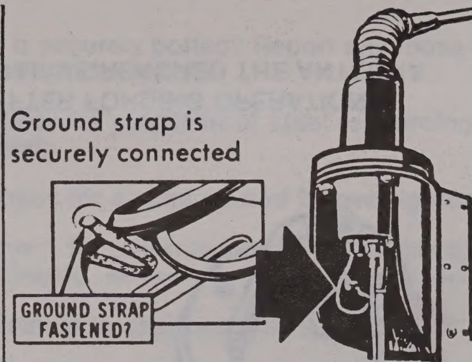
						Connections at R-T Antennas		
7	✱					Ground Strap	Ground strap is securely connected 	
8	✱					Element Contacts	Make sure that the contact sticks out from the top of the spring section and that the contact is not loose and O-ring is in place.	CONTACT IS MISSING OR IT CANNOT STICK OUT. **NOTE** OPERATOR SHALL NOT REMOVE RT ANTENNA'S LOWER ELEMENT FROM THE MX UNIT. THIS IS A FUNCTION OF C-E ORG MAINT. OPERATOR MAY REMOVE AND REPLACE THE UPPER ELEMENT ONLY. SPECIAL TOOL REQUIRED.
9	✱					Safety Wire	Make sure safety wire is connected between the bottom antenna element and spring section.	

TABLE 2-1. PMCS (continued)

ITEM NO.	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	FOR READINESS REPORTING EQUIPMENT IS NOT READY/AVAILABLE IF:
						R-T Antenna Matching Units		
✸ 10					✸	Water Drain (on COMPACT and ROUND BASE ANTENNA MATCHING UNITS)	Drain all water trapped inside the mount.	

✸ DO THIS STEP AS SOON AS POSSIBLE AFTER FORDING OPERATIONS. ALSO WHEN YOU SUSPECT WATER MAY HAVE REACHED THE ANTENNA MATCHING UNIT.

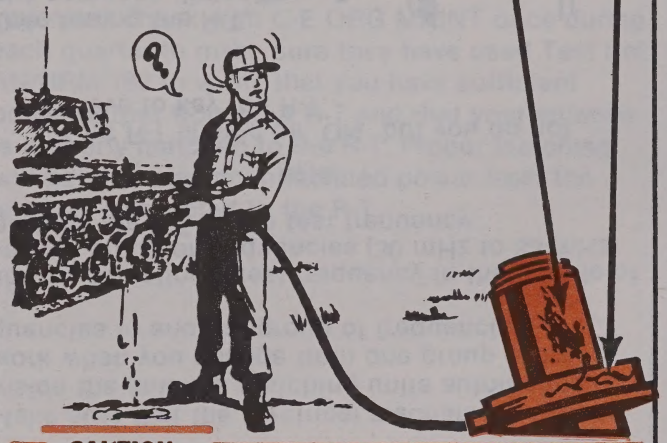
11	✸				Housing	Is it securely bolted? Report any loose or missing bolts and washers. Check for proper fit of steel reinforcing ring (if used). Check for cracks caused by overtightening. Check for softening caused by painting or solvents. Clean with clear water and a rag ONLY.  **CAUTION:** DO NOT USE WATER UNDER PRESSURE, DO NOT USE TRICHLOROTRIFLUOROETHANE. PAINT ACCORDING TO MIL-E-52798 (ME).	

TABLE 2-1. PCMS (continued)

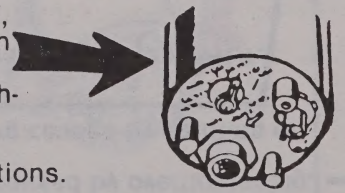
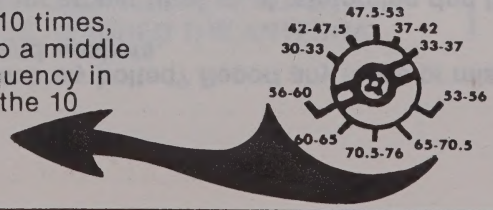
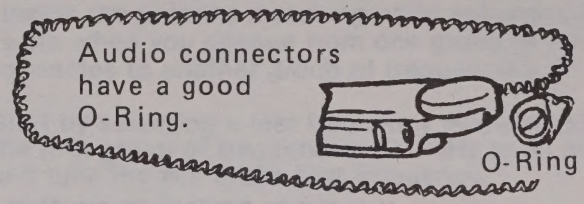
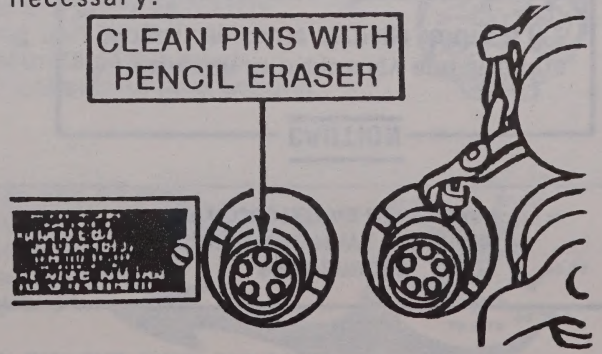
ITEM NO.	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	FOR READINESS REPORTING EQUIPMENT IS NOT READY AVAILABLE IF:
12					✸	Turning mechanish inside COMPACT ANTENNA MATCHING UNIT (MX-9146/VRC) or ROUND BASE ANTENNA MATCHING UNIT (MX-6707/VRC) or BOX BASE ANTENNA MATCHING UNIT (MX-2799/VRC).	Make sure that the electrical mechanical circuits inside the antenna matching units automatically work when you change from one group of frequencies to another group of frequencies. Start by selecting a test frequency in the middle of the first group of frequencies (30 mHz to 33 mHz) and tune the R-T to the test frequency. **NOTE:** Your R-T should be ON but you do not have to key the R-T. While tuning the R-T, have someone listen carefully at the side of the antenna matching unit for the sounds of the electrical-mechanical actions.  Do this 10 times, tuning to a middle test frequency in each of the 10 groups. 	On Antenna Matching Unit MX-2799/VRC, the electrical-mechanical sounds cannot be heard as you go through every one of the ten test frequency tuning steps. OR On Antenna Matching Unit MX-9146/GRC and Antenna Matching Unit MX-6707/VRC, the electrical-mechanical sounds cannot be heard as you go through every one of the 10 test frequency tuning steps, AND you cannot change the circuits by turning the control at the bottom of the antenna matching unit because the control is broken or it cannot be reached. In M1, M2, and M3 vehicles the frequency cannot be verified if the matching unit does not operate electrically.

TABLE 2-2. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

ITEM NO.	INTERVAL QUARTERLY	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	FOR READINESS REPORTING EQUIPMENT IS NOT READY/AVAILABLE IF:
13	✸	R-T OUPUT POWER AND MATCHING UNIT	**CAUTION** A mismatch in frequency and antenna length can cause damage to the RT. You must check with C-E ORG MAINT once during each quarter to make sure they have used Test Set AN/URM-182 to verify that you have sufficient power output from your R-T and that your antenna is properly matched to the R-T. Proper matching will get you maximum radiated power from the antenna connected to the R-T.	C-E ORG MAINT is not available or able to do the necessary tests.

TABLE 2-1. PCMS (continued)

ITEM NO.	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	
						AUDIO ACCESSORIES		
14	✱					O-Rings	Audio connectors have a good O-Ring. 	
15	✱				✱	Lubrication	O-Ring has a light coat of silicone compound. Use(item 2, appx. D).	
16	✱					Moisture Barriers	If used, moisture barriers are in place.	
17					✱	Pins on all Receptacles and Connectors	Check for corrosion. Clean with pencil eraser if necessary. 	Report missing or damaged pins to C-E Org Maint.

18	✸		✸	Connections	ALL R-T and AUX RECEIVER MOUNTS

CAUTION

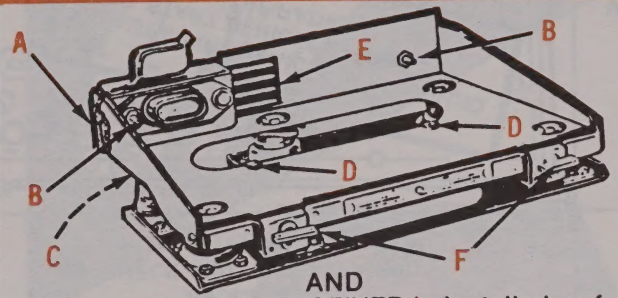
BEFORE REMOVING OR INSTALLING ANY RADIO EQUIPMENT, MAKE SURE THAT ALL RADIO AND INTERCOM POWER SWITCHES ARE OFF.

Before insalling an R-T or AUX receiver on its mount, make sure that:

- **A** Receptacle cover is removed and chain is not caught between guide pin and receptacle.
- **B** Both mount guide pins are straight.
- **C** Unused underside receptacles are covered.
- **D** Grounding straps are securely connected between top tray and mount base.
- **E** Vent port area is free of obstructions.

CAUTION

ON EARLY MODEL R-T MOUNTS, A SPECIAL VENT COVER IS PROVIDED. THIS VENT COVER MUST BE INSTALLED WHEN SET IS IN OPERATION.



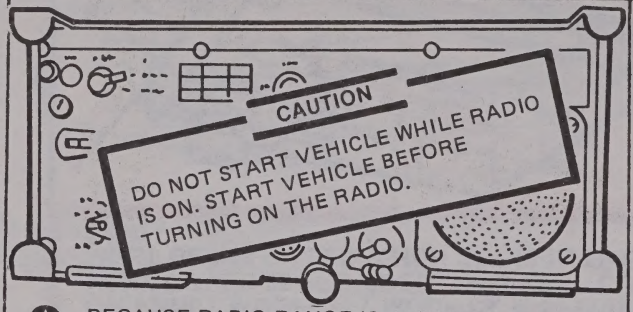
AND

after the R-T or AUX RECEIVER is installed, safety wire may be installed between the mount clamps (F).

R-T or AUX RECEIVER cannot be clamped in its mount securely.

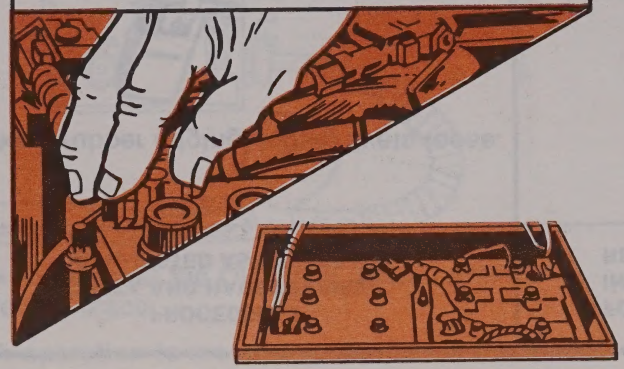
R-T or AUX RECEIVER MOUNTS are not securely mounted in the vehicle

TABLE 2-1. PCMS (continued)

ITEM NO.	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	FOR READINESS REPORTING EQUIPMENT IS NOT READY/AVAILABLE IF:
						R-T AND AUX RECEIVER		
✪ 19	✸					BASIC OPERATION (OVER A DISTANCE)	✪ BECAUSE RADIO RANGE IS AFFECTED BY TERRAIN, WEATHER, ANTENNA TYPES AND MANY OTHER CONDITIONS, THESE CHECKS SHOULD BE DONE OVER A DISTANCE AND UNDER CONDITIONS SELECTED BY YOUR COMMUNICATION'S SUPERVISOR. During normal operation: "KEY THE RADIO" and talk to the distant radio station. During transmission, you should hear: sidetone (your voice) and the blower running. During reception, you should hear the distant station. Set up the desired SQUELCH operation with the distant station, and verify CALL lamp operation.	When using the R-T: You cannot hear sidetone or the blower running, or the cover for the X-MODE receptacle is missing. When using the AUX RECEIVER: You cannot hear the distant station (if mission requires the AUX RECEIVER be available to monitor a specific frequency at all times). Sidetone can be heard while wearing helmet or headset but you cannot hear the blower.

			VEHICLE BATTERY COMPARTMENT		
✪	24	✸	Cables and Terminals	Check to see that the: Battery terminals are not corroded. Radio power cable lugs are securely connected to the battery. Radio power cable leads are tagged.	

Check with fingers—
not vise-grips or pliers.



✪Your vehicle commander may direct that this step be done differently and/or at a different time.

TABLE 2-1. PCMS (continued)

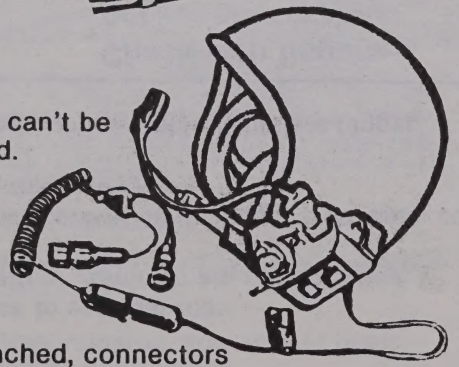
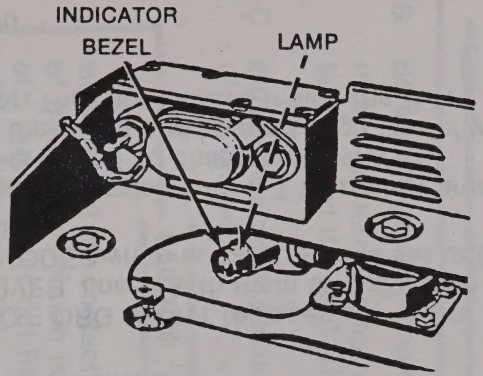
ITEM NO.	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	FOR READINESS REPORTING EQUIPMENT IS NOT READY/AVAILABLE IF:
						DH-132,DH-132A Helmet		
25	✸					Outer Shell	Cracked, rubber edging, loose, rivets loose.	
26	✸					Clothing Clip		
	✸							
27	✸					Mike Boom Adjusting Knob	Missing, can't be tightened.	
28	✸					Bail-out Connector and Cord	 Cord pinched, connectors separate smoothly.	
29	✸					Guide Boom	Bent, ball joint sticking or loose, frame or cord twisted.	

TABLE 2-1. PCMS (continued)

39	✸							MINI-SUPPRESSOR (If provided instead of MX-7778/GRC)	Check that FAULT INDICATOR is not lighted (defective MINI—SUPPRESSOR; org maintenance must replace MINI—SUPPRESSOR.)	MX-7778/GR or Mini Suppressor is defective or missing.
								OUTSIDE CONTROL BOX C-2296/VRC)		
40	✸							OUTSIDE CALL LAMP	Check to see that the OUTSIDE CALL LAMP is securely in place.	Communications not possible using the OUTSIDE VEHICLE CONTROL BOX (If mission requires this type of hookup).
41	✸							Normal operation	Check operation to include operation with an outside telephone connected to the unit.	



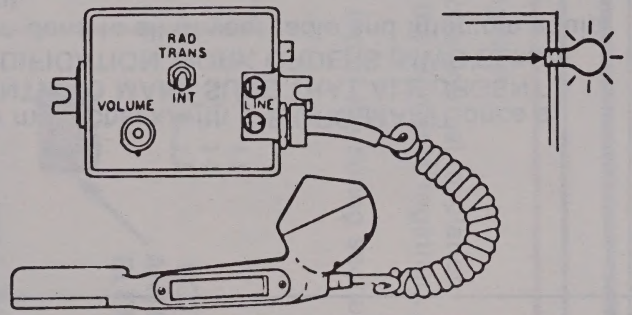


TABLE 2-1. PCMS (continued)

ITEM NO.	INTERVAL B	D	A	W	M	ITEM TO BE INSPECTED	PROCEDURES CHECK AND HAVE REPAIRED OR ADJUSTED AS NECESSARY	FOR READINESS REPORTING EQUIPMENT IS NOT READY/AVAILABLE IF:
						CRITICAL SUPPORT BY C-E ORG MAINT		
42					✸	URGENT MWO	You must check with C-E ORG MAINT once a MONTH TO MAKE SURE THAT ALL URGENT MODIFICATION WORK ORDERS (MWO'S) have been done to all of your radio and intercom equipment.	C-E ORG MAINT TELLS YOU THAT ONE OR MORE URGENT MWO'S HAVE NOT BEEN DONE TO YOUR EQUIPMENT.
★ 43						Links in R-T MOUNTS and AUX RECEIVER MOUNTS	Whenever C-E ORG MAINT works on or replaces any R-T MOUNT or AUX RECEIVER MOUNT, check with them to make sure the links inside the mount are properly connected.	
★ 44						Internal X-MODE Switches	Whenever C-E ORG MAINT replaces any R-T or AUX RECEIVER, check with them to make sure the internal X-MODE switch in each radio is set to the proper position.	
★ 45						R-T Cooling	After you have operated your R-T in a dusty area, ask C-E ORG MAINT to check and clean if necessary, the vanes and squirrel cage fins of your R-T's blower. They are located inside the R-T.	

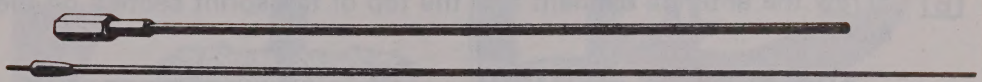
★ The interval for these items varies and they should be done as stated in the PROCEDURES column.

2-56. INSTALLATION OF ANTENNA ELEMENTS ON ROUND BASE ANTENNA (AS-1729/VRC) OR BOX BASE ANTENNA (AT-912/VRC)

A Apply a light coat of Silicone Compound (item 2, appx. D) to the threads on the antenna elements.

CAUTION

DO NOT USE GRAPHITE GREASE.



B Screw the two antenna elements together.

If they are loose, wrap a few turns of electrical insulation tape around the joint (after putting the elements together).

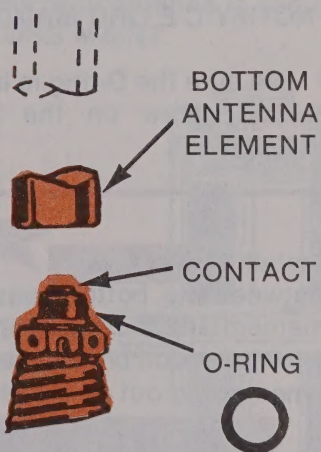
C Screw the bottom section onto the top of the spring section of the mount.

CAUTION

Be sure that the contact on the top of the spring section is not loose and that it sticks out from the top of the spring section.

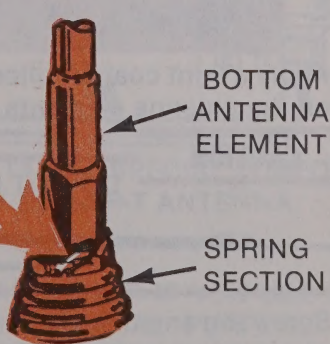
IF YOU HAVE ANY PROBLEMS WITH THE CONTACT, NOTIFY C-E ORG MAINT.

ALSO--Be sure the O-ring is in place before you screw on the bottom antenna element.



D Install a safety wire between the bottom antenna element and the top of the spring section on the mount, when going out on a mission.

E Operator may remove and replace upper AT Sections only. C-E ORG MAINT must be called to remove and replace AT base, using Load Tightening Tool.

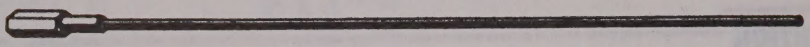


2-57. INSTALLATION OF ANTENNA ELEMENT ON COMPACT ANTENNA (AS-2731/GRC)

A Apply a light coat of Silicone Compound (item 2, appx. D) to the threads on the antenna elements.

CAUTION

DO NOT USE GRAPHITE GREASE.



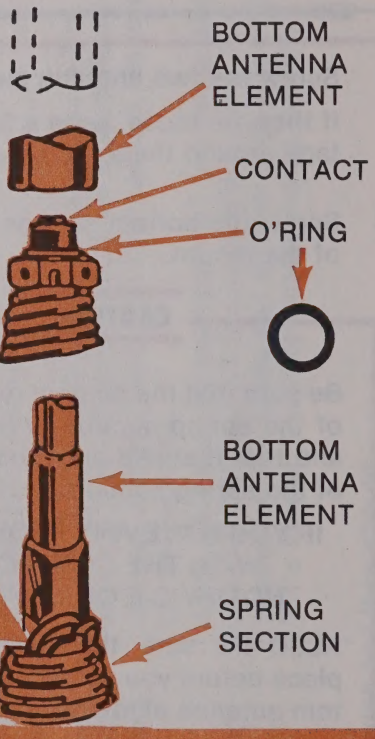
B Screw the antenna element into the top of the sprint section on the mount.

CAUTION

Be sure that the contact on the top of the spring section is not loose and that it sticks out from the top of the spring section.

IF YOU HAVE ANY PROBLEMS WITH THE CONTACT, NOTIFY C-E ORG MAINT.

ALSO -- Be sure the O-ring is in place before you screw on the bottom antenna element.



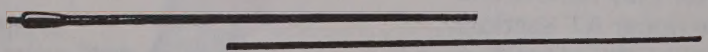
C Install a safety wire between the bottom antenna element and the top of the spring section on the mount when going out on a mission.

2-58. INSTALLATION OF ANTENNA ELEMENTS ON AUX RECEIVER ANTENNA MAST BASE (AB-558/GR)

A Apply a light coat of Silicone Compound (item 2, appx. D) to the threads on the antenna elements.

CAUTION

DO NOT USE GRAPHITE GREASE.

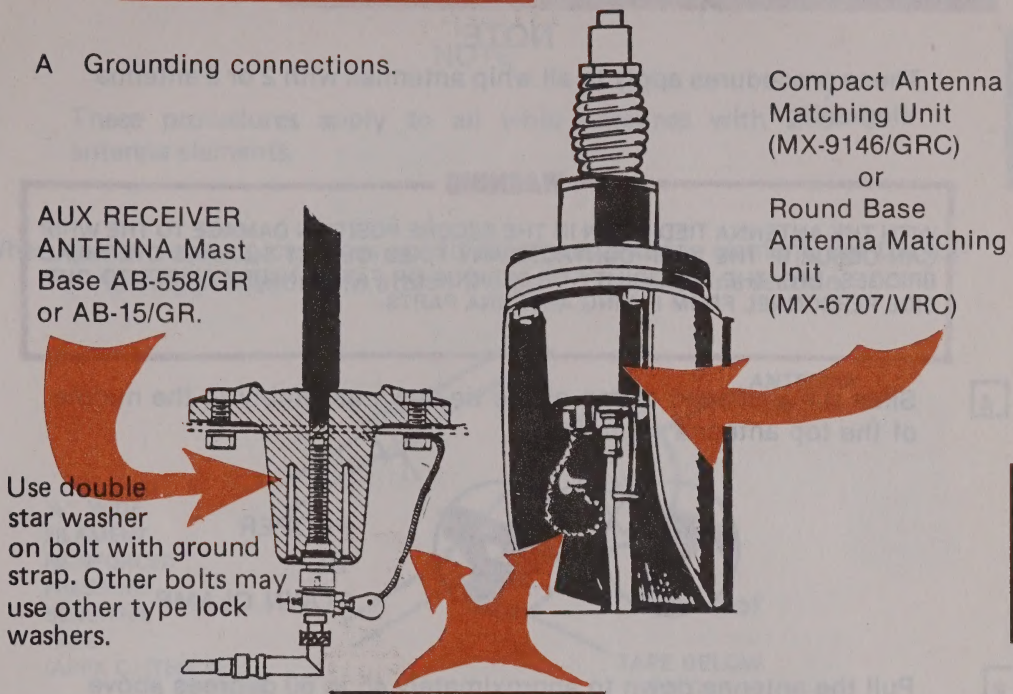


B Screw the antenna elements together. If they are loose, wrap a few turns of electrical insulation tape around the joint.

C Screw the bottom section into the top of the spring section.

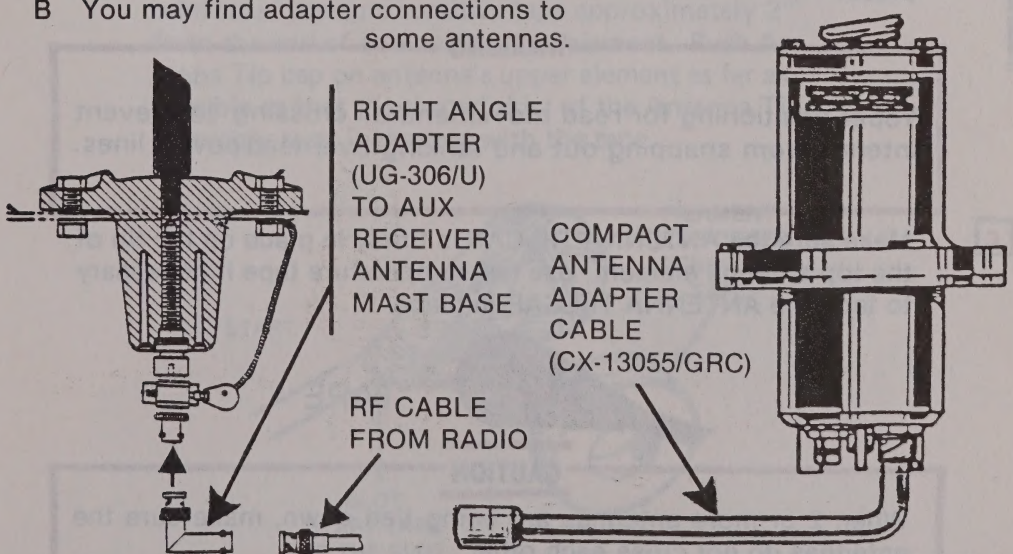
2-59. ANTENNA CONNECTIONS

A Grounding connections.



Make sure the ground connection for your antenna is securely connected. Report problems to C-E ORG MAINT.

B You may find adapter connections to some antennas.



C Remember, in some models of the M60 TANK, "SPECIAL PURPOSE" cables MUST be used to connect the R-T to the R-T ANTENNA MATCHING UNIT.

WARNING

SERIOUS INJURY OR EVEN DEATH CAN OCCUR IF YOU USE REGULAR CABLES IN PLACE OF THE SPECIAL PURPOSE CABLES.

2-60. WHIP ANTENNA TIE-DOWN PROCEDURES

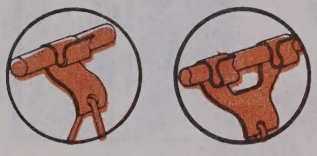
NOTE:

These procedures apply to all whip antennas with 2 or 3 antenna elements.

WARNING

WITH THE ANTENNA TIED DOWN IN THE SECURE POSITION DAMAGE TO THE WHIP CAN OCCUR IF THE WHIP CONTACTS ANY FIXED OBJECT SUCH AS OVERHEAD BRIDGES, ETC. THE POSSIBILITY OF SERIOUS OR FATAL INJURY EXISTS TO OUTSIDE PERSONNEL FROM FLYING ANTENNA PARTS.

A Slide the V-shaped clamp of the tie-down assembly to the middle of the top antenna element.



PROPER TIE-DOWN CLAMP

B Pull the antenna down to approximately 45 to 60 degrees above the ground level and tie the tie-down rope(s) to the approved place.

WARNING

Proper positioning for road movement/rail crossing to prevent antenna from snapping out and striking overhead power lines.

C Make sure the ANTENNA TIP CAP is firmly in place on the tip of the top antenna element. Use low temperature tape if necessary to tape the ANTENNA TIP CAP in place.

CAUTION

When 2 or more antennas are being tied down, make sure the antennas do not cross each other.

Double check your antennas after tie-down to make sure they do not stick out beyond the sides of the vehicle and that no person walking by the vehicle can be hit in the face by the tied-down antenna tip.

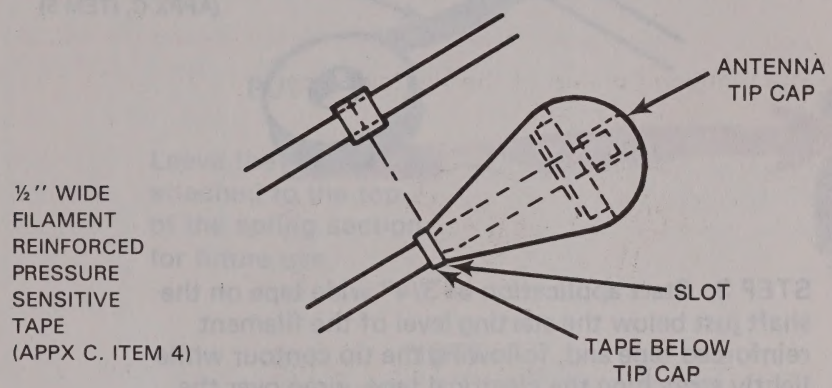
D Remember, radio range is decreased when you are operating with your antenna tied down.

2-60.1 INSTALLING ANTENNA TIP CAP - Continued

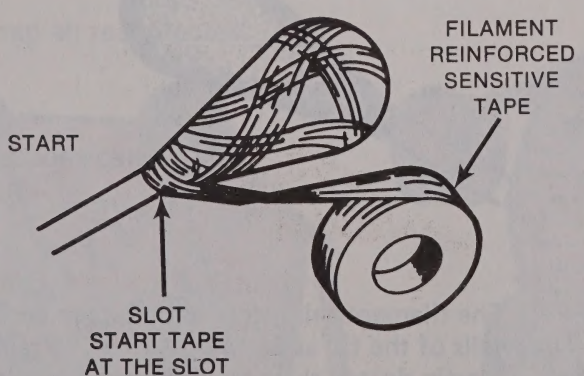
NOTE

These procedures apply to all whip antennas with 2 or 3 antenna elements.

When the antenna tip cap does not fit the upper antenna element, use the following procedures to attach the cap to the antenna section.

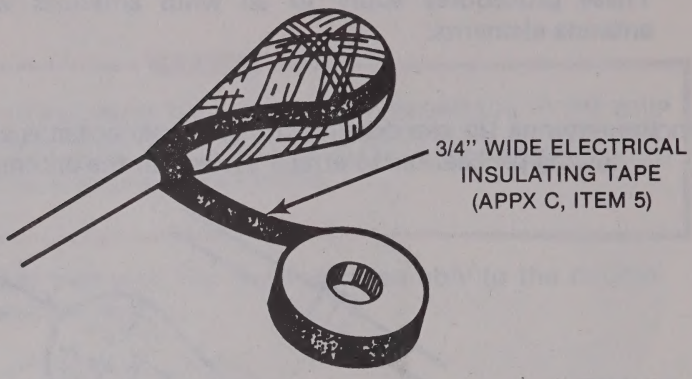


STEP 1. Apply 6-7 layers of 1/2" wide filament-reinforced pressure sensitive tape approximately 2" from the end of antenna's upper element. Push Antenna Tip cap on antenna's upper element as far as possible so that the slotted skirt of the Antenna Tip Assembly rests in contact with the tape.

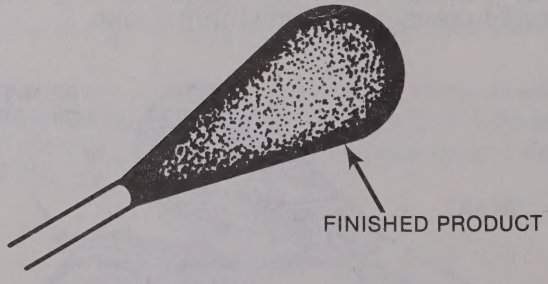


STEP 2. Start tape at the slot. Wrap across skirt slot to conform with the shape of the tip cap base so that the tape goes over the cap top and returns to the slotted end. Cut tape and make new start at next slot, repeating the procedure in a crossing pattern until all slots have been reinforced and the antenna tip cap is completely covered.

2-60.1 INSTALLING ANTENNA TIP CAP - Continued



STEP 3. Start application of 3/4" wide tape on the shaft just below the starting level of the filament reinforced tape and, following the tip contour while lightly stretching the electrical tape, wrap over the top and back to the starting position. Repeat until entire tip assembly is completely covered and the joint below the cap is neatly tapered to the shaft.



STEP 4. The filament reinforced tape acts to secure the two shells of the tip assembly together, to reinforce the plastic slotted skirt, to cushion against impact, and to secure the tip assembly to the antenna's upper element. The electrical insulating tape seals and protects the filament reinforced tape from the effects of sunlight and moisture. Replace tape when excessively scuffed or weathered.

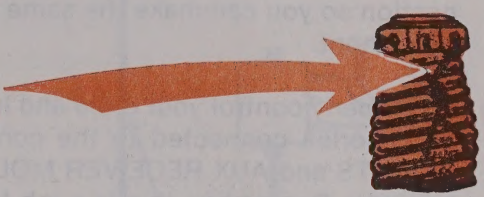
2-61. DISASSEMBLY OF ALL WHIP ANTENNAS

A Remove the tie-down assembly (if used).

B Remove the safety wire (if used) from the bottom antenna element.

BUT

Leave the safety wire attached to the top of the spring section for future use.



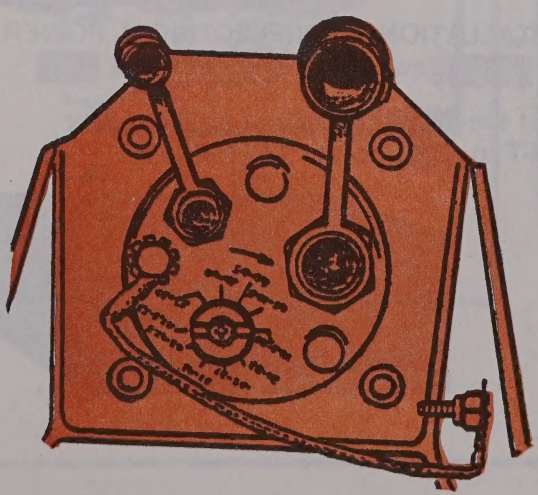
NOTE

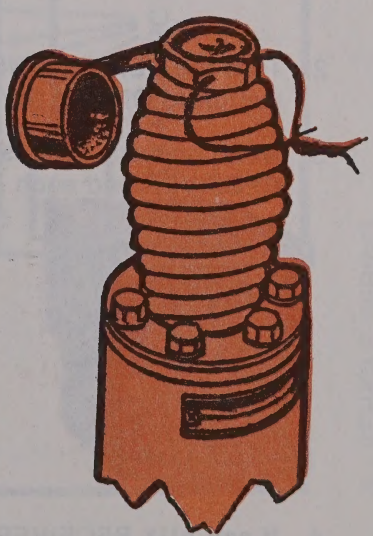
Antenna base assemblies may be removed by C-E Org. Maint. ONLY. It is necessary to use the Load Tightening Tool which is authorized at C-E Org. level.

C Unscrew the antenna element(s).

D Store the removed antenna element(s) and tie-down(s).

E Cover or cap all receptacles.





2-62. INSTALLATION OF MAIN JUNCTION BOX-AMPLIFIER AND CONTROL BOXES

A These items are normally permanently installed in the proper location. If it is necessary to connect cables, carefully follow the cabling drawings in SECTION IV, CABLING.

B When installing cables, make sure that all nuts, bolts, screws and lock washers holding the equipment and cables in place are not loose or missing. Report any problems to C-E ORG MAINT.

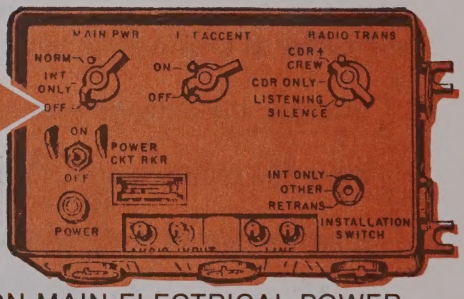
C When removing cables, carefully note their position and angle of connection so you can make the same connection when you re-cable the equipment.

D To properly control your radio and intercom equipment with the audio accessories connected to the control boxes, the "links" in all R-T MOUNTS and AUX RECEIVER MOUNTS must be connected in a certain way. Remember, this is a job for C-E ORG MAINT.

BUT

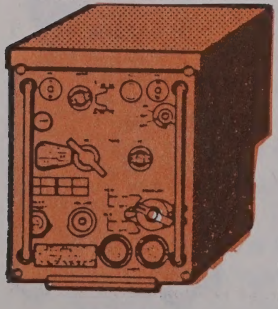
If C-E ORG MAINT is not handy to check your link settings, YOU can do a simple tests as follows:

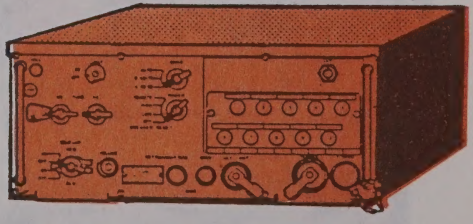
1 Turn the MAIN PWR switch on the MAIN JUNCTION BOX-AMPLIFIER to **OFF**.



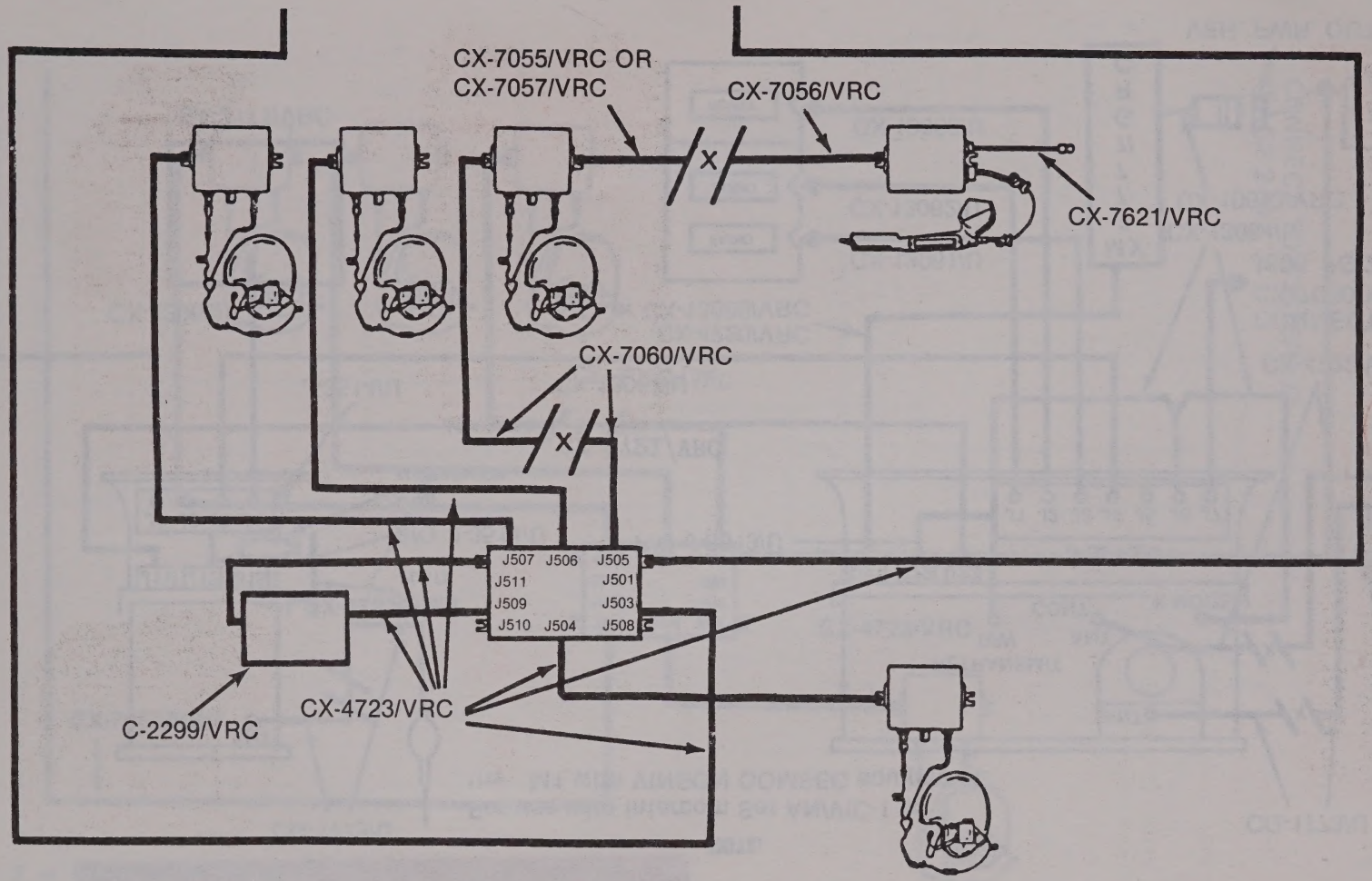
2 Turn the VEHICLE/INSTALLATION MAIN ELECTRICAL POWER switch to ON and the **LIGHT** switch on every radio to **ON**.

3 Next, one at a time, set the **POWER** switch on each AUX RECEIVER and each R-T to **ON** (do the "A" R-T last).



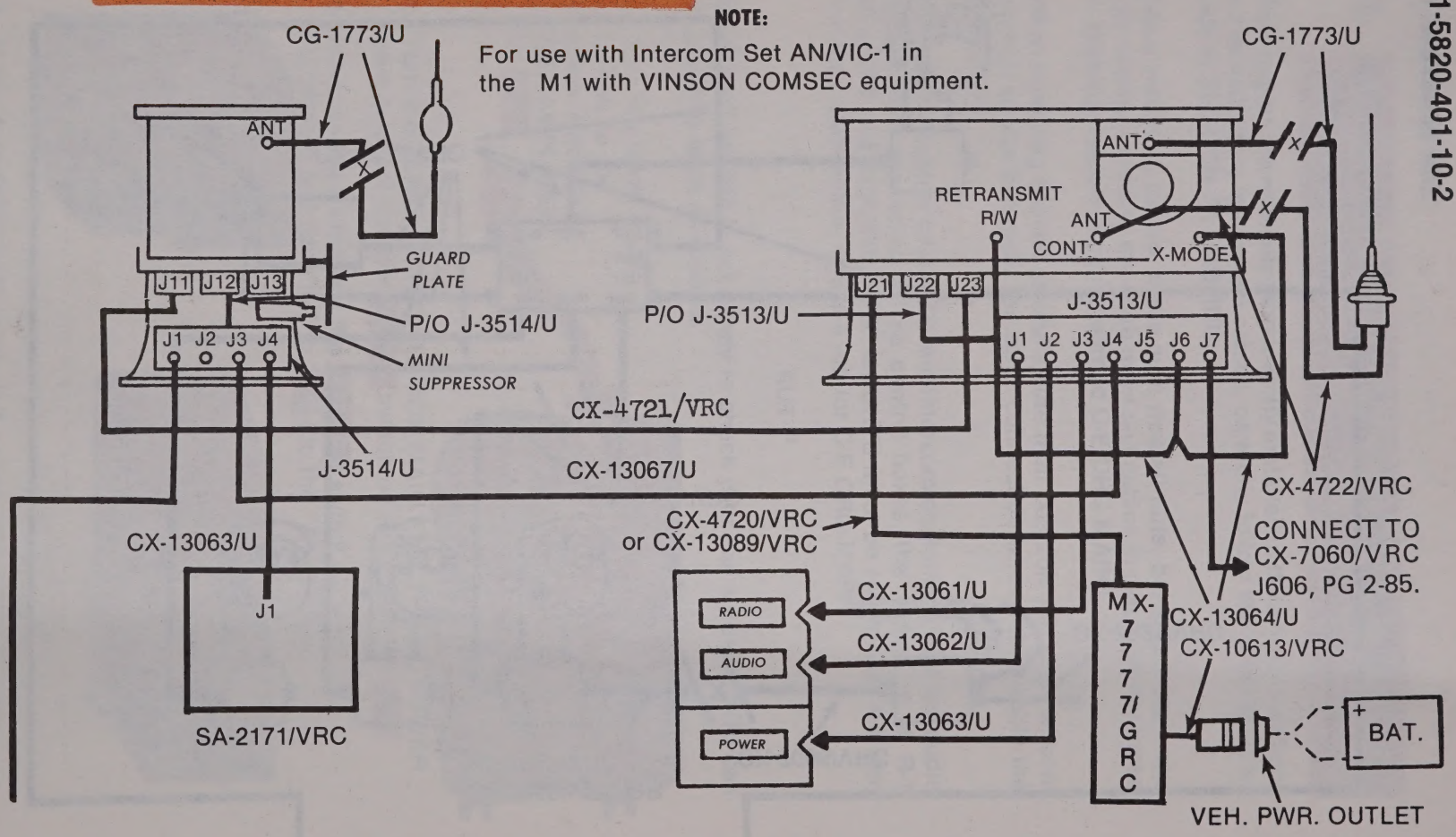


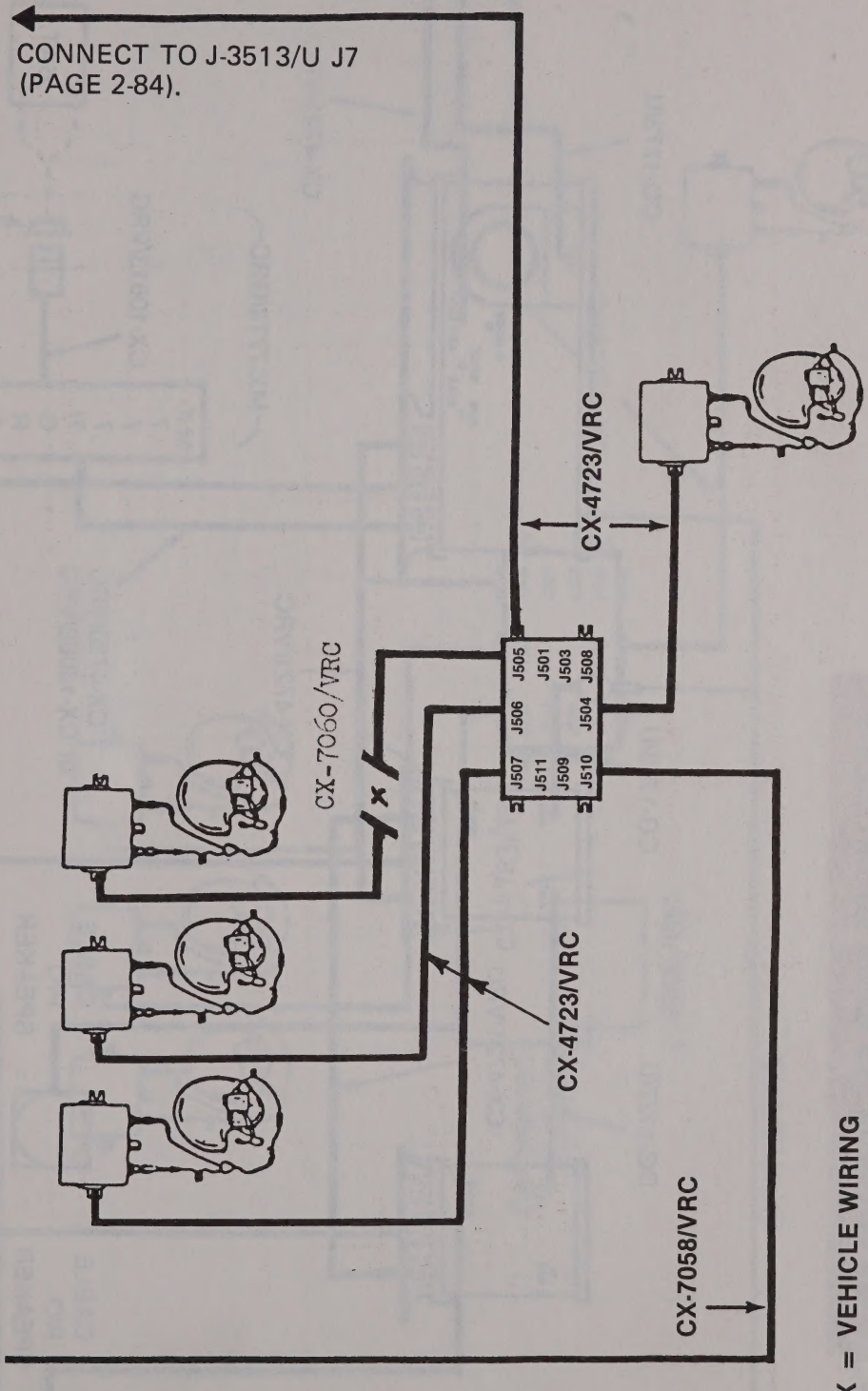
4 If any AUX RECEIVER or any R-T comes ON (dial light lights up), your links are set wrong. NOTIFY YOUR SUPERVISOR.



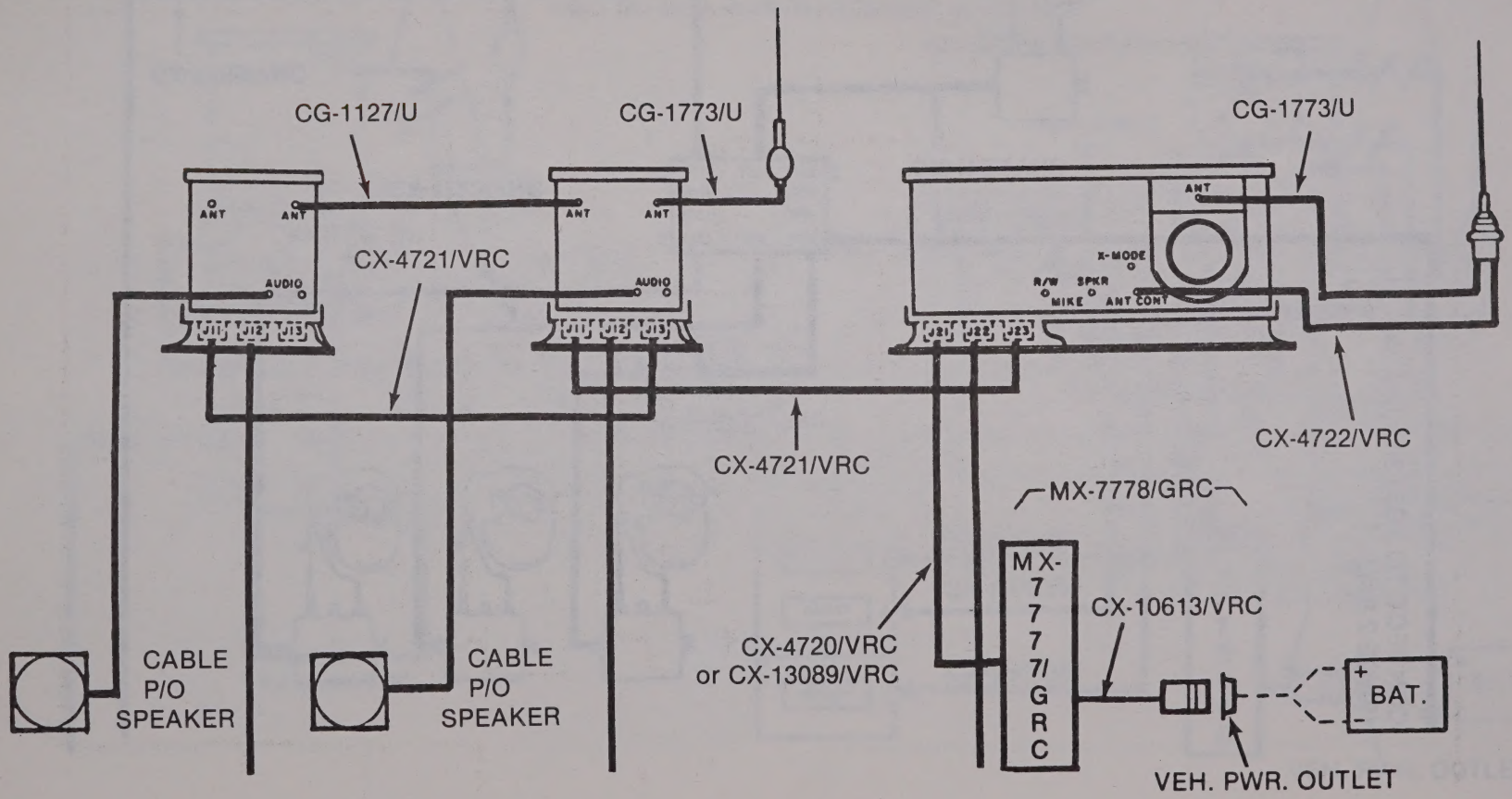
X - VEHICLE WIRING

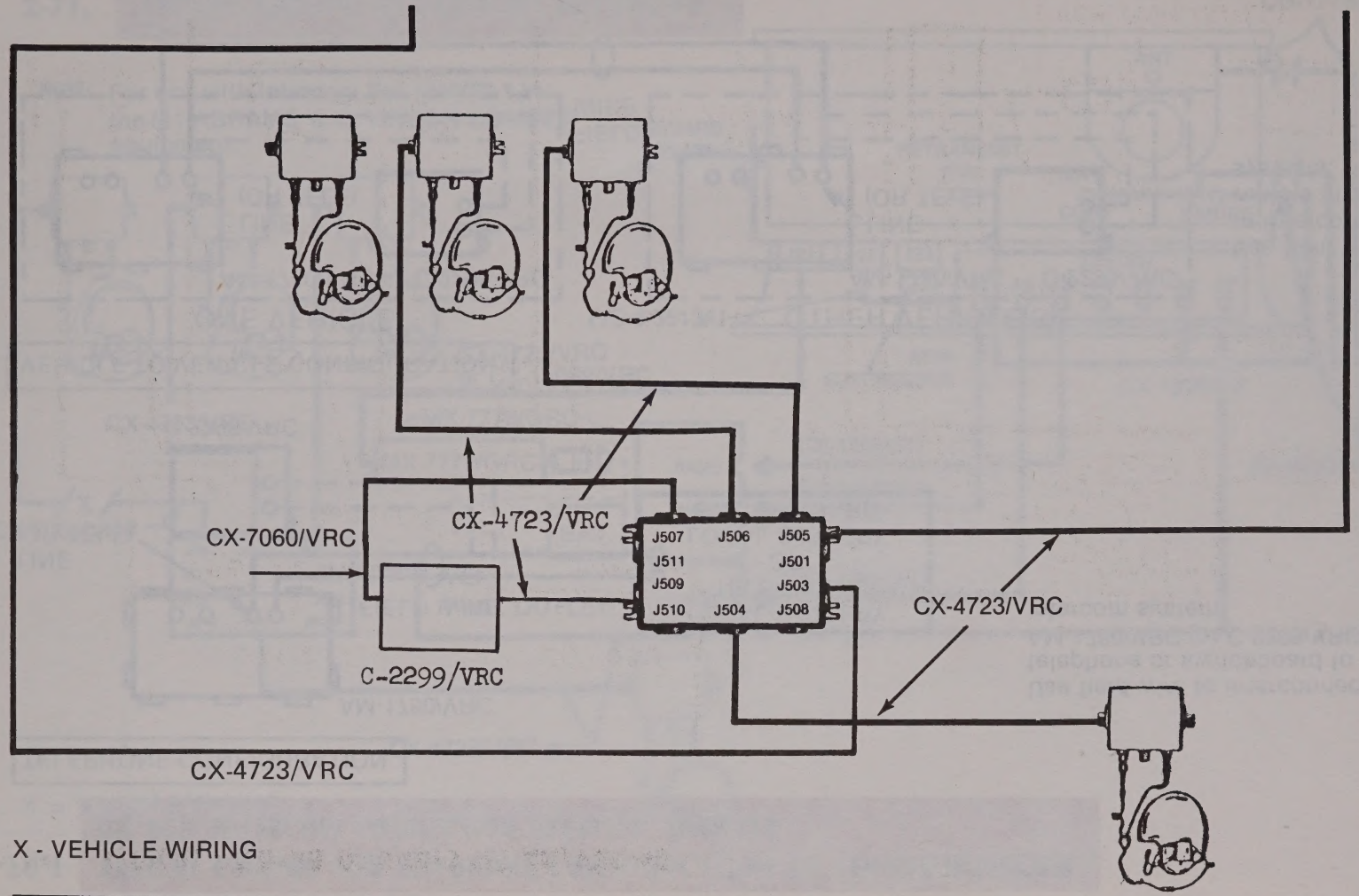
2-68. TYPICAL CABLING OF RADIO SET AN/VRC-47




CONNECT TO J-3513/U J7
(PAGE 2-84).
CX-4723/VRC
CX-7060/VRC
X
J505
J501
J503
J508
J506
J504
J507
J511
J509
J510
CX-4723/VRC
CX-7058/VRC
X = VEHICLE WIRING

2-69. TYPICAL CABLING OF RADIO SET AN/VRC-48

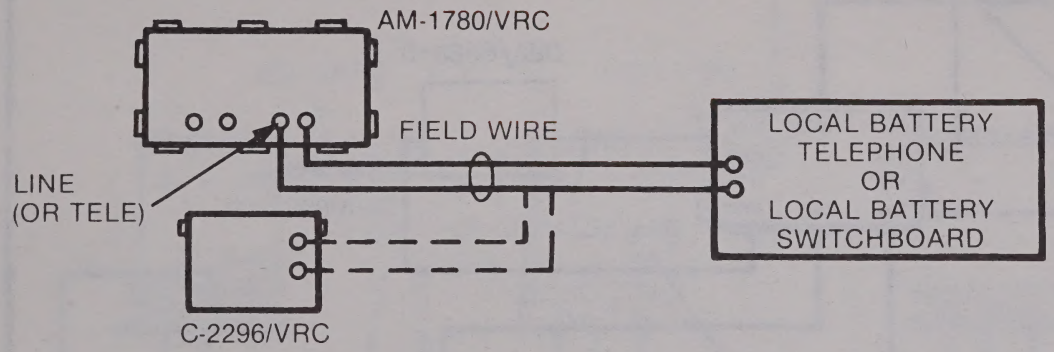




X - VEHICLE WIRING

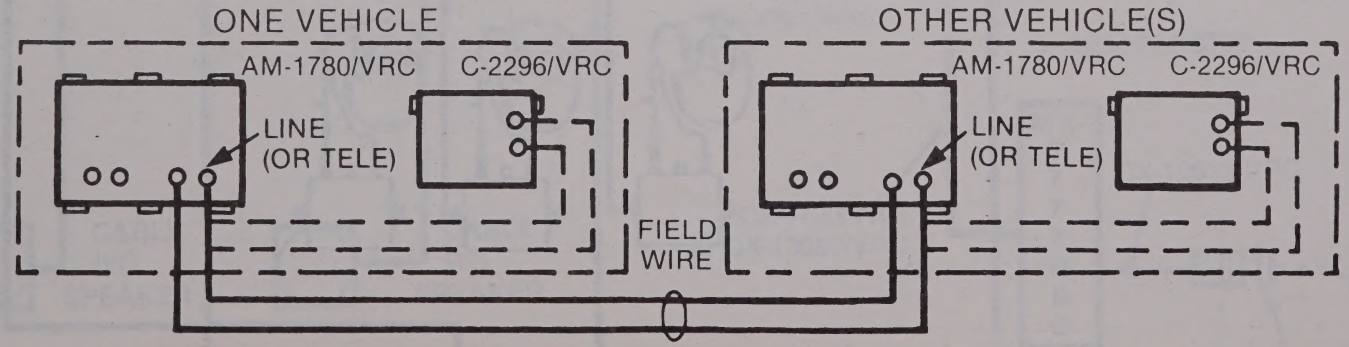
2-70.1 TYPICAL CABLING FOR TELEPHONE COMMUNICATION TO VEHICLE INTERCOM OR FOR INTERCOM CONNECTION BETWEEN VEHICLES.

TELEPHONE CONFIGURATION



Use field wire to interconnect telephone or switchboard to AM-1780/VRC (or C-2296/VRC) intercom system.

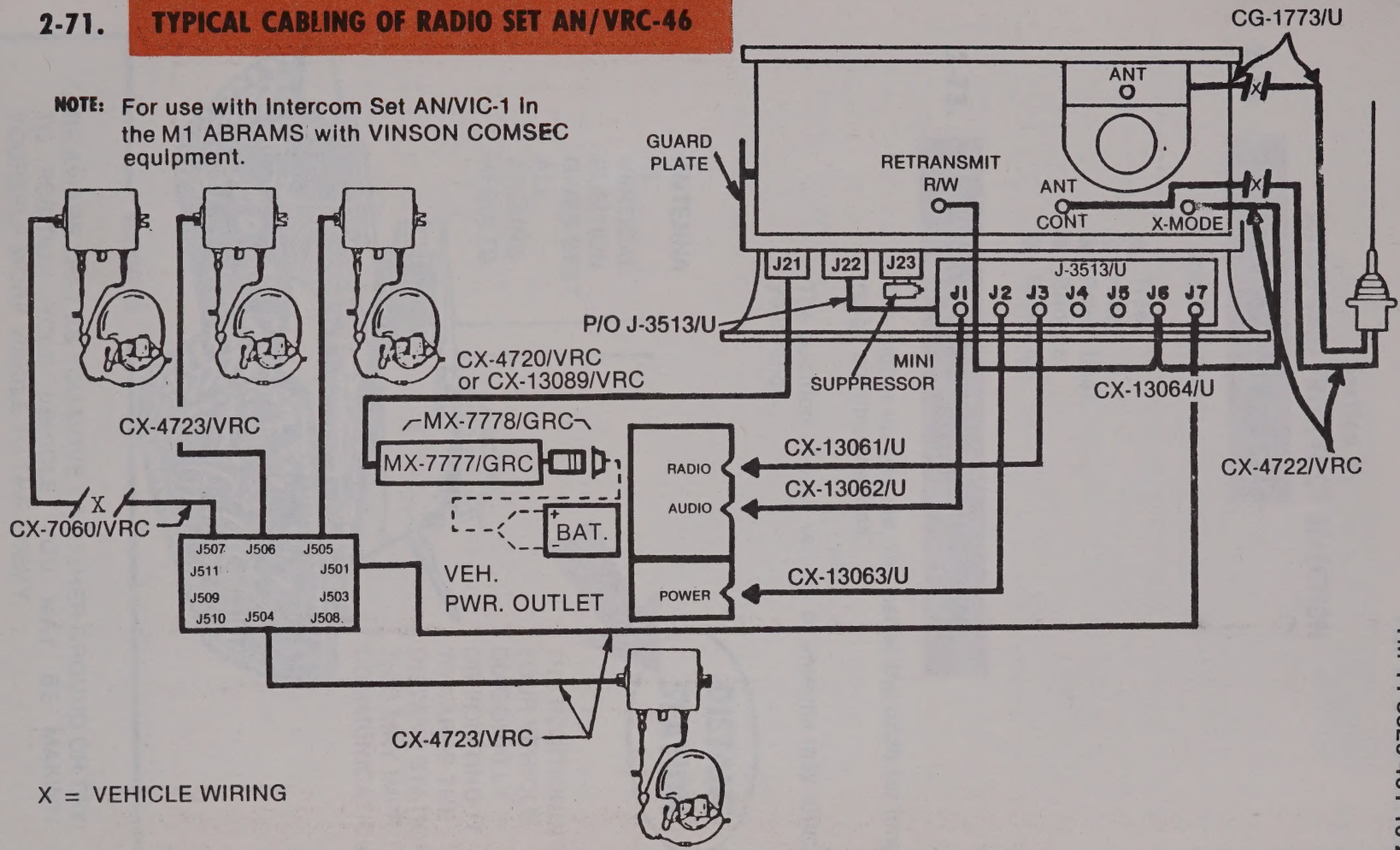
VEHICLE-TO-VEHICLE CONFIGURATION

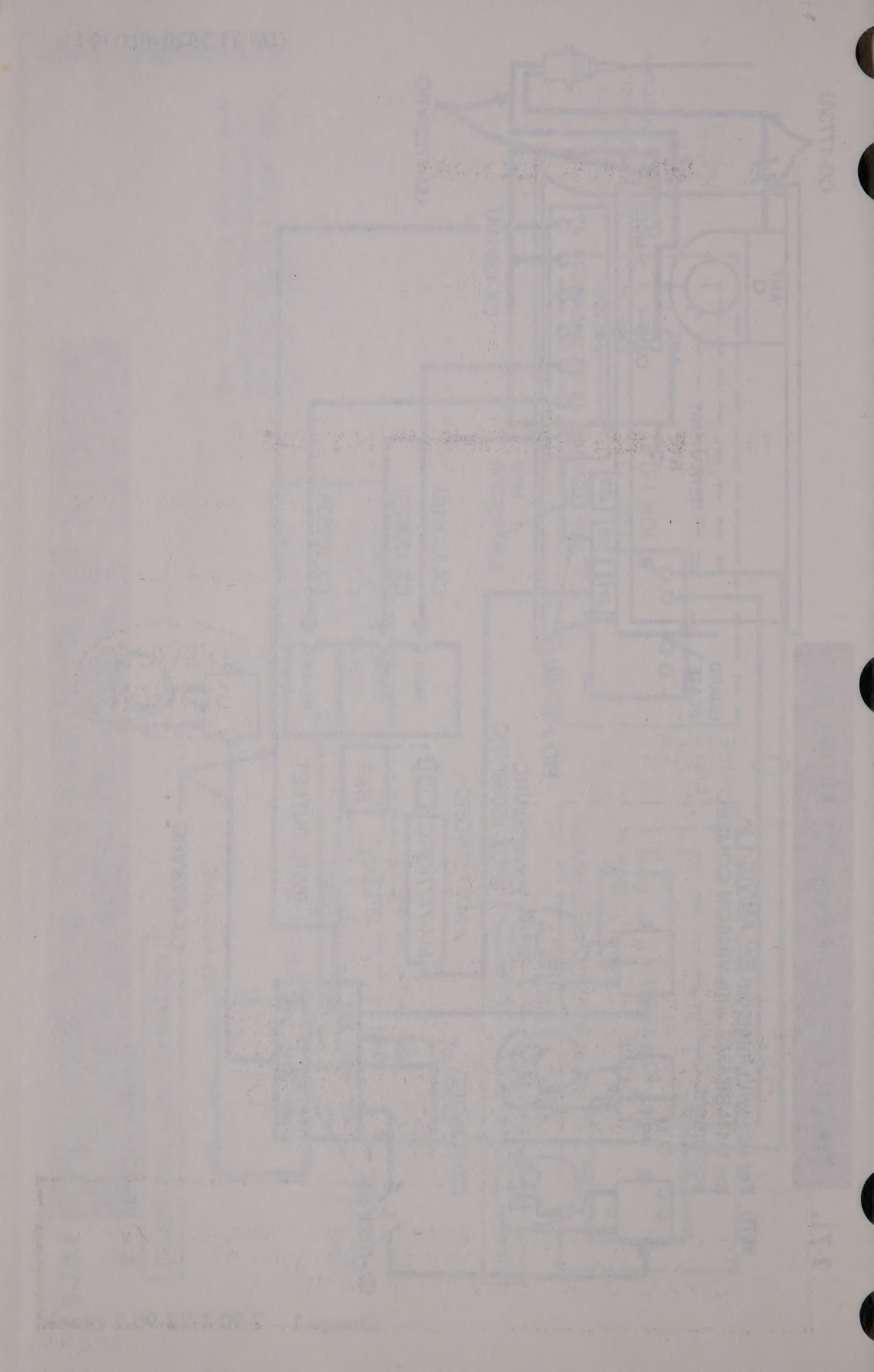


Use field wire to interconnect vehicle intercom systems.

2-71. TYPICAL CABLING OF RADIO SET AN/VRC-46

NOTE: For use with Intercom Set AN/VIC-1 in the M1 ABRAMS with VINSON COMSEC equipment.





Section V.
SITING AND FREQUENCY SELECTION

2-72. UNDESIRABLE LOCATIONS

If possible, avoid:

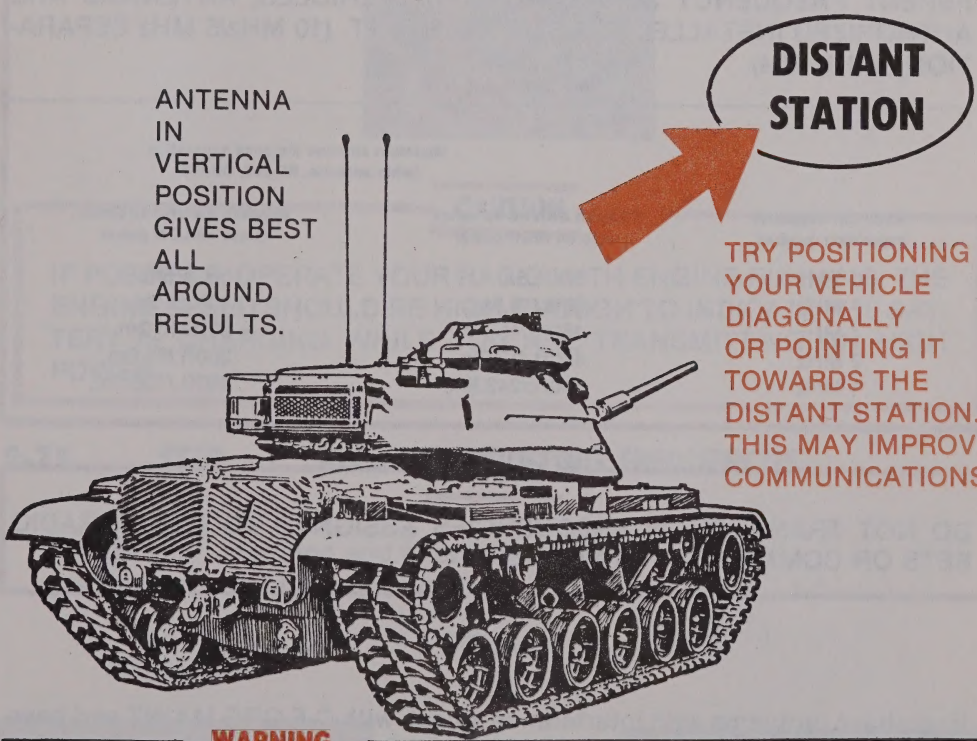
- Trees.
- Hills.
- Power lines.
- Bridges.
- Buildings.

2-73. DESIRABLE LOCATIONS AND POSITIONS

The higher up you are, the better the odds for long range communications.

AND

The position of your vehicle or antenna may affect your range.



WARNING

BE AWARE THAT AS YOU MOVE TO HIGHER GROUND OR TRY TO POSITION YOUR VEHICLE, YOU MAY BE MAKING YOURSELF MORE VISIBLE TO THE ENEMY.

2-74. AUTHORIZED OPERATING FREQUENCIES

Your authorized frequencies and call signs are found in the Communications Electronics Operation Instructions (CEOI). Carefully check all authorized frequencies and make sure the following CAUTIONS are followed:

CAUTION

DO NOT USE THE FOLLOWING FREQUENCIES IN SOME RADIOS, THEY MAY CAUSE IMPROPER OPERATION: 33.90, 45.20, 56.50, AND 67.30 MHz.

CAUTION

DO NOT USE FREQUENCIES WHICH ARE SEPARATED EXACTLY BY 5.75 MHz or 23.00 MHz.

CAUTION

DO NOT OPERATE TOO CLOSE TO OTHER RADIO SETS. THE FOLLOWING CHART SPECIFIES THE **MINIMUM** DISTANCE YOUR ANTENNA MUST BE FROM ANOTHER ANTENNA WHILE OPERATING AT DIFFERENT FREQUENCY SEPARATIONS. IN VEHICLES, ANTENNAS ARE AUTHORIZED INSTALLED CLOSER THAN 5 FT (10 MHz/5 MHz SEPARATION, MINIMUM).

	Minimum antenna distance separation (whip antenna, RC-292, OE-254)	
Minimum frequency separation required	Between AN/VRC-12 series radio on HIGH power	Between AN/VRC-12 series radios on LOW power
10 MHz	5ft./1.5m.	5ft./1.5m.
7 MHz	60ft./18.3m.	10ft./3.0m.
4 MHz	150ft./45.7m.	50ft./15.2m.
2 MHz	400ft./12.9m.	200ft./61.0m.
1 MHz	800ft./243.8m.	350ft./106.7m.

CAUTION

DO NOT TRANSMIT ON FREQUENCIES ASSIGNED TO OTHER RADIO SETS OR COMMERCIAL STATIONS.

AND

If you have problems with interference, check with C-E ORG MAINT and have them check their INTERFERING FREQUENCIES CHARTS to make sure you are using an interference free frequency.

SECTION VI .
OPERATION UNDER USUAL CONDITIONS

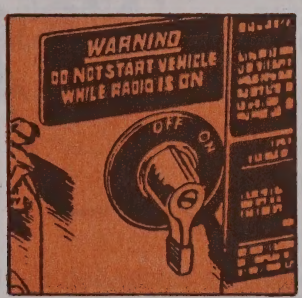
NOTE:

THE FOLLOWING STEP-BY-STEP OPERATING PROCEDURES APPLY TO THE RADIO AND INTERCOM EQUIPMENT WITHOUT ANY VINSON OR NESTOR COMSEC EQUIPMENT BEING CONNECTED TO THE RADIOS.

CAUTION

NEVER START YOUR VEHICLE WHILE THE RADIO OR RADIOS ARE ON.

ALWAYS START YOUR VEHICLE FIRST AND THEN PROCEED TO OPERATE THE RADIO AND INTERCOM EQUIPMENT.



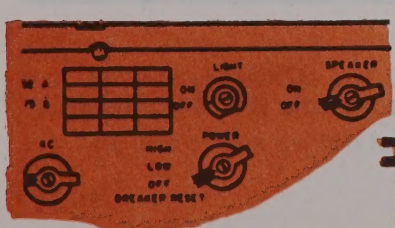
CAUTION

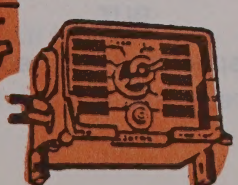
IF POSSIBLE, OPERATE YOUR RADIO WITH ENGINE RUNNING. THE ENGINE SPEED SHOULD BE HIGH ENOUGH TO INDICATE THE BATTERY IS CHARGING WHILE YOU ARE TRANSMITTING ON HIGH POWER.

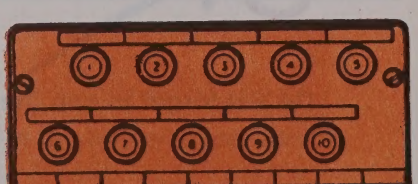
2-75. STEP 1 RECORD OPERATING FREQUENCIES

* Write your operating and alternate frequencies on the write-in plates on your equipment.

EXAMPLES:





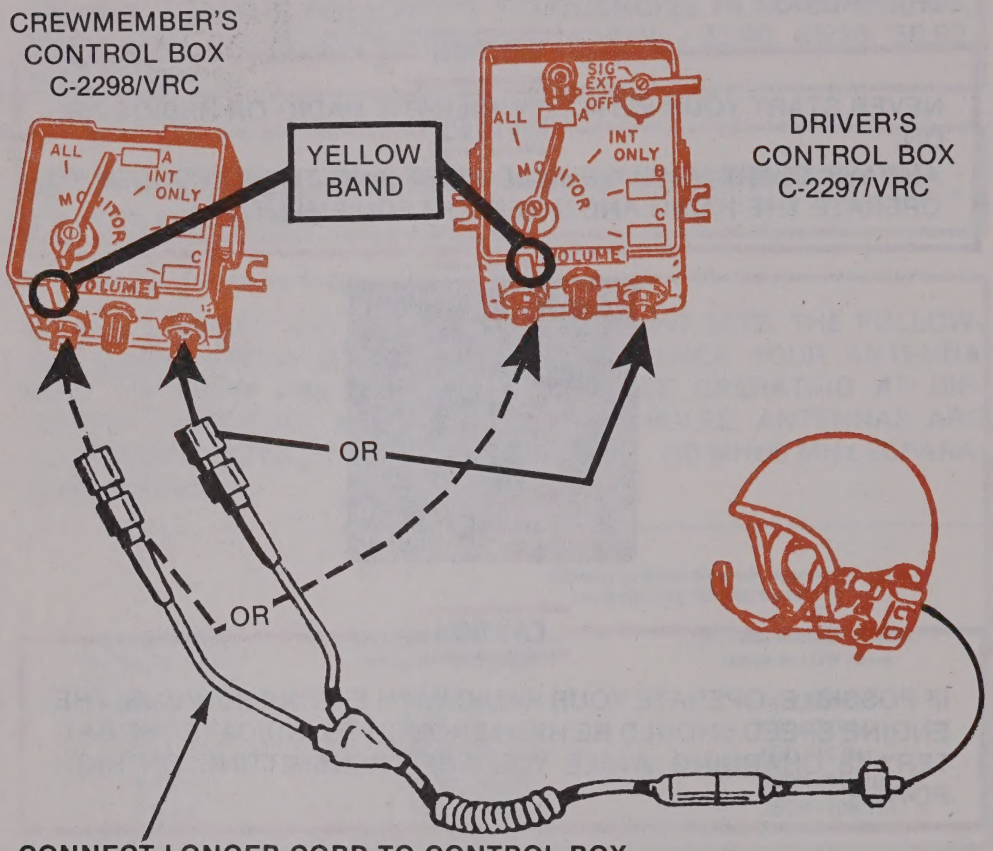


2-76. STEP 2 CONNECT AND ADJUST DH132A HELMET

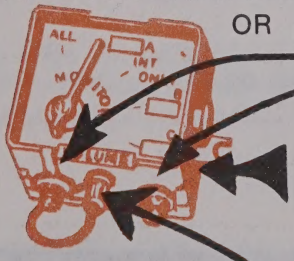
NOTE:

Normally, all CVC HELMETS are connected to a control box and the MONITOR switch on the CONTROL BOX set to a good position like ALL or A.

A Typical connection of the two branches from the CVC Helmet.



OR In the M 1 TANK, you CONNECT THE SAME WAY.

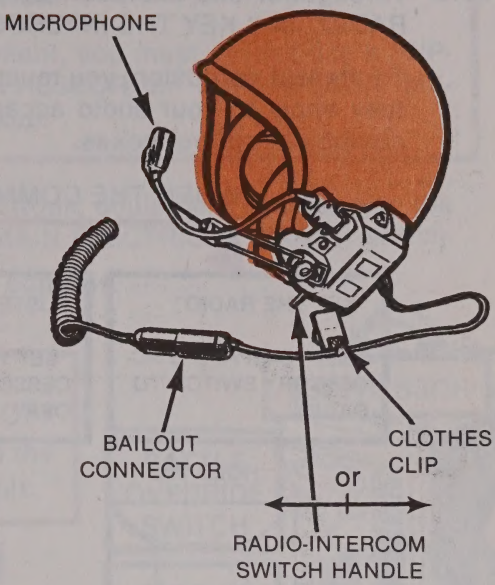


M 1 CREWMEMBER'S
CONTROL BOX
(C-10456/VRC)

BUT

Do not forget to cap the special remote receptacle if it is not used.

2-76. STEP 2 CONNECT AND ADJUST DH132A HELMET



B Typical helmet adjustments.

Adjust helmet headband straps to fit your head.

Insert or remove foam rubber sections to get a proper head size.

Make sure the earphone cushion snaps are secure.

Adjust the microphone boom so that the microphone is directly in front of and close to your lips.

C Bailout connections.

Make sure that the bailout connector separates smoothly.

D Clothes clip.

Clip the clothes clip to your clothing so that the upper and lower cord sections will not interfere.

WARNING

DO NOT FASTEN THE CLOTHES CLIP TO ANYTHING THAT DOES NOT STAY WITH YOU WHEN YOU LEAVE THE VEHICLE.

E RADIO-INTERCOM switch handle.

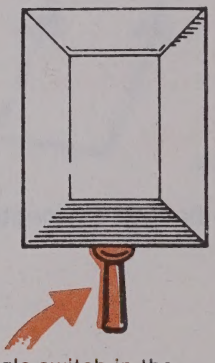
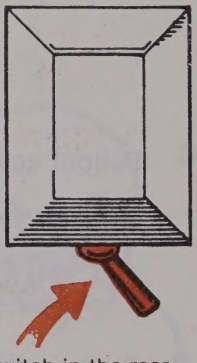
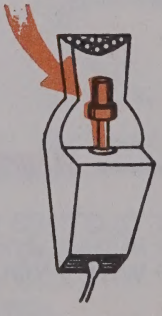
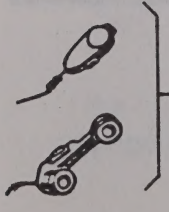
The use of this switch handle is described in the following paragraph.

2-77. STEP 3 OPERATION OF AUDIO ACCESSORY CONTROLS

NOTE: Throughout this manual, instructions will be given to "KEY THE RADIO" or " KEY THE INTERCOM" etc.

To prevent confusion, you must understand the following terms as they apply to your audio accessories connected to the intercom equipment control boxes.

WHEN THE COMMANDER ORDERS YOU TO

"KEY THE RADIO" or "SET YOUR AUDIO ACCESSORY SWITCH TO RADIO"	"LISTEN" or "SET YOUR AUDIO ACCESSORY SWITCH TO OFF"	"KEY THE INTERCOM" or "SET THE AUDIO ACCESSORY SWITCH TO INTERCOM"
HOLD THE	PLACE THE	PLACE THE
		
toggle switch in the forward (spring loaded) position and TALK on RADIO	toggle switch in the center position and LISTEN to RADIO and INTERCOM,	toggle switch in the rear position and TALK and LISTEN ON INTERCOM,
		
OR	OR	OR
 push-to-talk on radio.	release-to-listen to radio.	push-to-talk and listen on intercom.

2-78. STEP 4 INITIAL POWER TURN ON ACTIONS

CAUTION

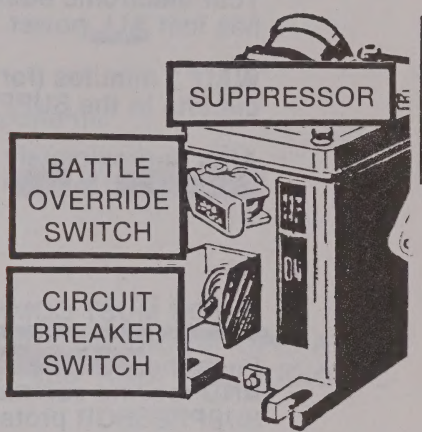
To prevent damage to your equipment, you must always use a SUPPRESSOR (either the MINI-SUPPRESSOR or SUPPRESSOR MX-7777/GRC) in your equipment hookup.

A Make power available for your electronic equipment by operating the proper INSTALLATION/VEHICLE MAIN ELECTRICAL POWER switch.

B Set SUPPRESSOR (MX-7777/GRC) controls.

CAUTION

Do NOT use circuit breaker as ON-OFF switch to apply or remove power to the Radio Equipment or damage may result.



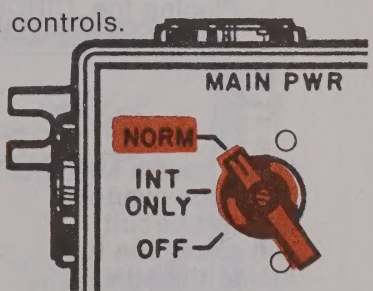
- CIRCUIT BREAKER TO ON.
  AND
- BATTLE OVERRIDE switch to OFF.

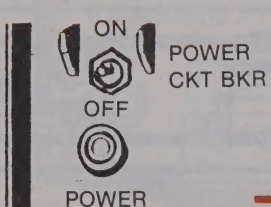
NOTE:

If you have a MINI-SUPPRESSOR, there are no controls to set or adjust.

C Set MAIN JUNCTION BOX-AMPLIFIER controls.

- MAIN PWR switch to NORM.
  AND
- PWR CKT BKR to ON.





CAUTION

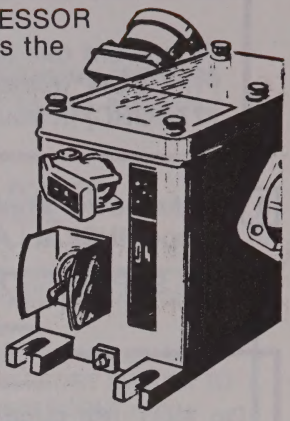
Always set the MAIN PWR switch to NORM first, then set the PWR CKT BKR to ON.

YOU ARE NOW READY TO OPERATE THE RADIO AND INTERCOM EQUIPMENT.

2-79. STEP 5 POWER TURN ON ACTIONS WHILE OPERATING

A

While operating with a system using SUPPRESSOR (MX-7777/GRC), IF TOO MUCH power reaches the SUPPRESSOR:



The CIRCUIT BREAKER will automatically jump to OFF

AND

Your electronic equipment has lost ALL power.

WAIT 2 minutes (for the overload circuits in the SUPPRESSOR to cool off.

After approximately 2 minutes, place the CIRCUIT BREAKER to ON and resume operation.

B

IF YOU MUST COMMUNICATE BEFORE THE 2 MINUTES ARE UP:

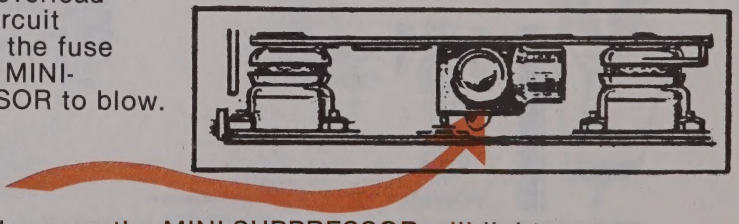
Push the BATTLE OVERRIDE switch to ON AND resume communications--- BUT ---you DO NOT HAVE SUPPRESSOR protection.

After 2 minutes, return the SUPPRESSOR to its normal job of protecting your equipment by

Placing the CIRCUIT BREAKER to ON and the BATTLE OVERRIDE switch to OFF.

NOTE :

If you have a MINI-SUPPRESSOR in your system, a serious overload or short circuit will cause the fuse inside the MINI-SUPPRESSOR to blow.



AND The lamp on the MINI-SUPPRESSOR will light up.

The light tells you that you have lost protection for your electronic equipment. AND You should call C-E ORG MAINT to replace the MINI-SUPPRESSOR. You are not authorized to replace the MINI-SUPPRESSOR.

2-91. STEP 17 INTERCOM ONLY OPERATION WITH MAIN JUNCTION BOX-AMPLIFIER

[A] Set INSTALLATION SWITCH to OTHER .

[B] Make power available for your intercom equipment by operating the power INSTALLATION/VEHICLE MAIN ELECTRICAL POWER switch.

[C] MAIN PWR switch to INT ONLY .

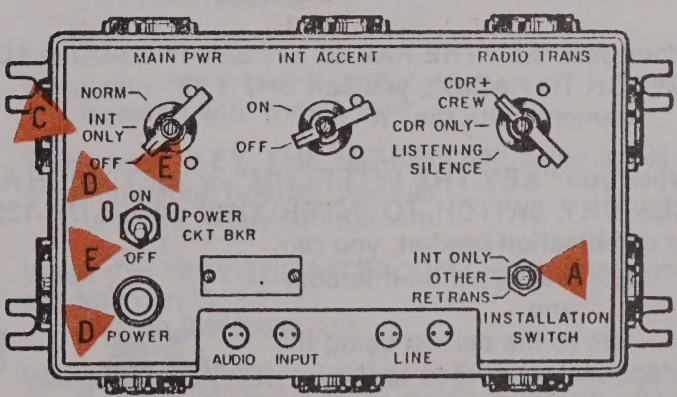
[D] POWER CKT BKR switch to ON .

★ The POWER lamp will light.
★ Power is applied to all intercom components.

[E] To turn off the MAIN JUNCTION BOX-AMPLIFIER:

★ MAIN PWR switch to OFF
★ POWER CKT BKR to OFF .

THE ABOVE PROCEDURES MAKE ONLY INTERCOM OPERATION POSSIBLE USING THE CONTROL BOXES AND THE AUDIO ACCESSORIES CONNECTED TO THEM.



CAUTION

DO NOT PLACE THE INSTALLATION SWITCH TO INT ONLY POSITION WHEN YOUR MAIN JUNCTION BOX IS CONNECTED TO A RADIO SYSTEM.

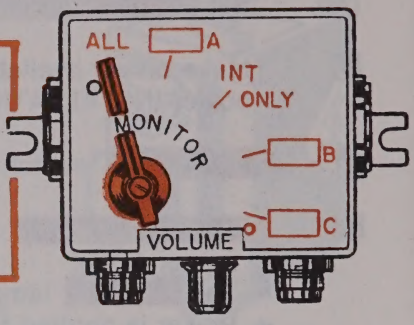
2-92. STEP 18 NORMAL RADIO AND INTERCOM OPERATION WITH CREWMEMBER'S CONTROL BOX

NOTE:

Refer to paragraph 2-77 for a review of the keying terms.

CAUTION:

WHEN YOU "KEY THE RADIO" IN THE STEPS LISTED BELOW, YOU WILL BE CUT OFF IF ANOTHER CREWMEMBER "KEYS" THE INTERCOM WHILE YOU ARE TRANSMITTING.



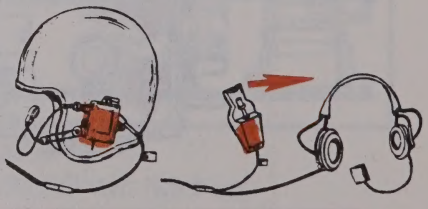
MONITOR switch position

ALL

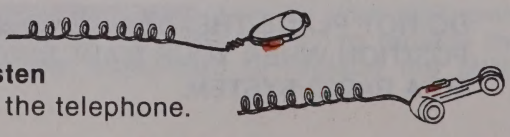
When you **"LISTEN"** or "SET THE AUDIO ACCESSORY SWITCH TO OFF", **you** can **hear** the
"A" R-T and "B" AUX receiver and "C" AUX receiver
and
intercom signals
and
a person taling on the telephone connected to the MAIN JUNCTION BOX-AMPLIFIER **or** OUTSIDE CONTROL BOX
and
the receiver connected to the AUDIO terminals on the MAIN JUNCTION BOX.

When you **"KEY THE RADIO"** or "SET THE AUDIO ACCESSORY SWITCH TO RADIO", **you** can
transmit with the "A" R-T

When you **"KEY THE INTERCOM"** or "SET YOUR AUDIO ACCESSORY SWITCH TO INTERCOM" using a **DH-132A** helmet or **combination headset,** you can
talk and listen on intercom
and
talk to the person using the telephone connected to the MAIN JUNCTION BOX-AMPLIFIER or OUTSIDE CONTROL BOX.



When you **"KEY THE INTERCOM"** using a **microphone** or **handset,** you can
talk on intercom
or **talk** and **listen**
to the operator of the telephone.



2-92. STEP 18 NORMAL RADIO AND INTERCOM OPERATION WITH CREWMEMBER'S CONTROL BOX. Continued

A

When you **"LISTEN"** or "SET THE AUDIO ACCESSORY SWITCH TO OFF," **you** can **hear** the
"A" R-T
and
intercom signals.

When you **"KEY THE RADIO"** or "SET THE AUDIO ACCESSORY SWITCH TO RADIO," **you** can
transmit with the "A" R-T.

When you **"KEY THE INTERCOM"** or "SET YOUR AUDIO ACCESSORY SWITCH TO INTERCOM" using a **DH-132A** helmet or combination headset, **you** can
talk and **listen** on intercom.

When you **"KEY THE INTERCOM"** using a microphone or handset **you** can
talk on intercom.

INT ONLY

When you **"LISTEN,"** you can **hear** all signals applied to the intercom. (When intercom is keyed).

When you **"KEY THE INTERCOM"** using a **DH-132A** helmet or combination headset, **you** can
talk and **listen** on intercom.

When you **"KEY THE INTERCOM"** using a microphone or handset, **you** can
talk on the intercom.

B

When you **"LISTEN,"** you can **hear** the
"B" AUX receiver
and
intercom signals.

When you **"KEY THE RADIO,"** you can
transmit with the "A" R-T.

When you **"KEY THE INTERCOM"** using a **DH-132A** helmet or combination headset, **you** can
talk and **listen** on intercom.

When you **"KEY THE INTERCOM"** using a microphone or handset, **you** can
talk on intercom.

C

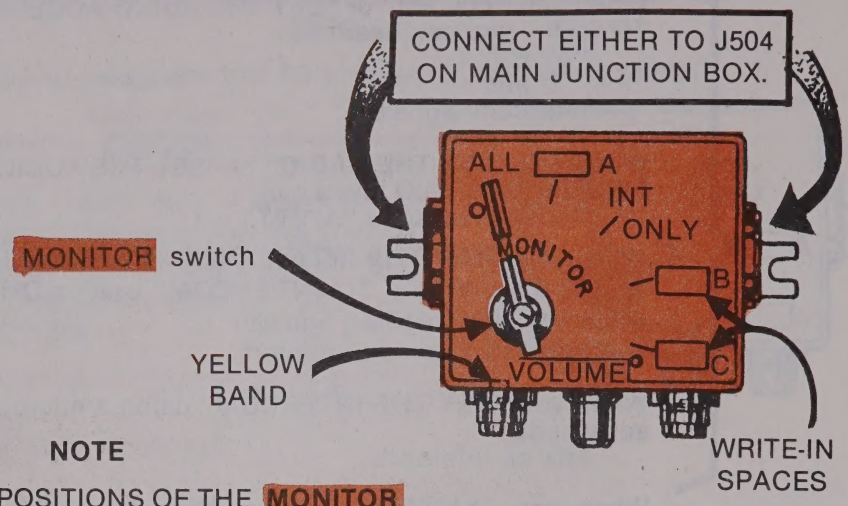
When you **"LISTEN,"** you can hear the
"C" R-T or "C" AUX receiver.

When you **"KEY THE RADIO,"** you can
transmit with the "C" R-T.

NOTE: As a crewmember you cannot **talk** on intercom.

VOLUME CONTROL is adjusted for a comfortable listening level.

2-93. **STEP 19 NORMAL RADIO AND INTERCOM OPERATION WITH COMMANDER'S CONTROL BOX**



NOTE

ALL POSITIONS OF THE **MONITOR** SWITCH OPERATE THE SAME AS THEY DID ON THE CREWMEMBER'S CONTROL BOX EXCEPT FOR POSITION [C].

NOTE

WHEN A CREWMEMBER'S CONTROL BOX IS CONNECTED TO RECEPTACLE **J504** ON THE MAIN JUNCTION BOX-AMPLIFIER, IT BECOMES A COMMANDER'S CONTROL BOX. THIS SPECIAL CONNECTION MAKES THE COMMANDER THE **MASTER OF THE RADIOS.** WHEN HE IS TRANSMITTING, **NO CREWMEMBER CAN INTERRUPT HIM** BY "KEYING THE INTERCOM".

POSITION [C]

When the COMMANDER **"LISTENS",** he can hear the "C" R-T or "C" AUX receiver.

During "KEY THE RADIO", he can **transmit** with the "C" R-T.

During "KEY THE INTERCOM" using a **DH-132A** helmet or combination headset, **he** can **talk** and **listen** on intercom

VOLUME control is adjusted by the COMMANDER for a comfortable listening level.

2-94. STEP 20 NORMAL OPERATION WITH DRIVER'S CONTROL BOX (C-2297/VRC)

NOTE:

For NORMAL radio and intercom operation using the DRIVER'S CONTROL BOX, the instructions in paragraph 2-92 apply.

BUT

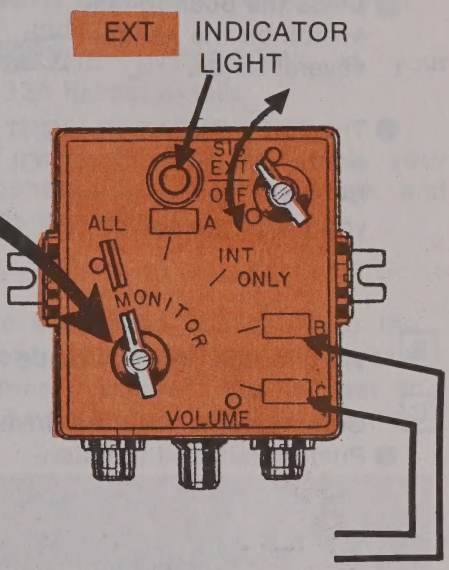
When operating with the OUTSIDE CONTROL BOX (C-2296/VRC), the following steps should be followed:

Consider yourself as the driver in these steps.

A Signal the OUTSIDE CONTROL BOX.

Place your MONITOR switch to INT ONLY
and
move your SIG-EXT-OFF switch from EXT to SIG several times.

Your EXT INDICATOR LIGHT
and
the OUTSIDE CALL LAMP will light each time you go to the SIG position.



B Communicate with the person at the OUTSIDE CONTROL BOX. Place your SIG-EXT-OFF switch to EXT (your EXT INDICATOR LIGHT will stay lighted).
and
"KEY THE INTERCOM" at your DH-132A helmet.

NOTE:

While you are communicating in this manner, all other crewmembers can hear. They can talk to the person at the OUTSIDE CONTROL BOX using "KEY THE INTERCOM".

C **Connect** the OUTSIDE CONTROL BOX operator to the radio(s) he desires to hear or to transmit with by turning your MONITOR switch to the position that includes the desired radio.

D When the OUTSIDE CONTROL BOX operator is through, turn your SIG-EXT-OFF switch to OFF.

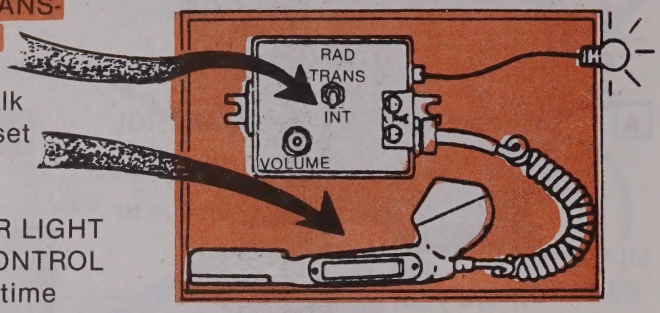
Your EXT INDICATOR LIGHT will go out.

2-95. STEP 21 NORMAL OPERATION WITH OUTSIDE CONTROL BOX (C-2296/VRC)

Consider yourself as the OUTSIDE CONTROL BOX operator in the following steps: .

A Signal the driver.

- Leave your RAD-TRANS-INT switch at INT and
- press the push-to-talk switch on the handset several times.
- The EXT INDICATOR LIGHT on the DRIVER'S CONTROL BOX will light each time you press the switch.



B Wait for the driver to place his SIG-EXT-OFF switch to EXT .

AND THEN

C Communicate with the driver using your handset.

- Push-to-talk and to-listen.

NOTE:

The communications is only on intercom.

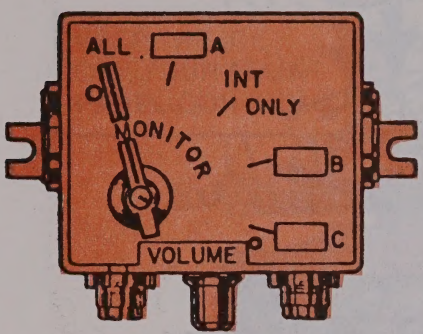
D If you desire to listen to a radio or transmit on an R-T, tell the driver and he will

- Select the proper radio by turning his MONITOR switch to the correct position.
- To transmit with an R-T, hold your RAD TRANS-INT switch in the RAD TRANS position with one hand and with the other hand, push-to-talk and release-to-listen.

E Your VOLUME control only affects the loudness of the signal you hear.

F When your communications are finished, the driver will turn his SIG-EXT-OFF switch to OFF .

2-96. STEP 22 NORMAL OPERATION WITH A TELEPHONE CONNECTED TO THE MAIN JUNCTION BOX-AMPLIFIER



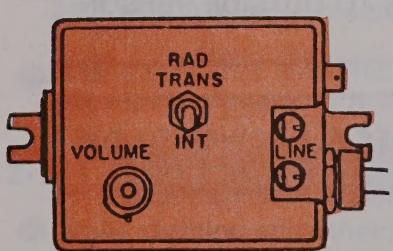
A All persons inside the vehicle can communicate with the person using the telephone.

Turn you control box MONITOR switch to ALL
and
"LISTEN" or "SET YOUR AUDIO ACCESSORY SWITCH TO OFF" to **hear**
and
"KEY THE INTERCOM" at your DH-132A helmet to **talk**
or
"KEY THE INTERCOM" with your microphone or handset to talk and release it to listen.

NOTE:

The handset or microphone should be connected to the YELLOW BAND receptacle on your control box when you want to talk to the user of the telephone. You must reconnect the handset or microphone to the other receptacle on your control box if you want to talk on the radio.

2-97. STEP 23 NORMAL OPERATION WITH A TELEPHONE CONNECTED TO THE MAIN JUNCTION BOX-AMPLIFIER



NOTE:

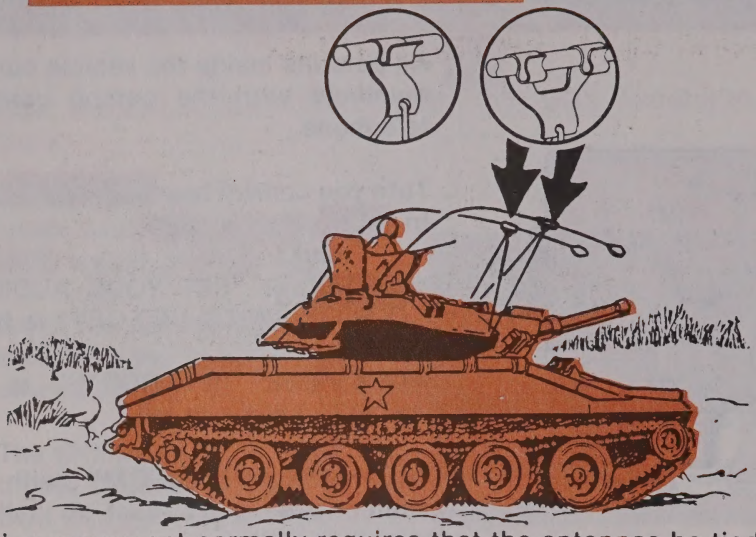
A telephone connected to the LINE binding posts on the OUTSIDE CONTROL BOX (C-2296/VRC) is electrically connected as a telephone connected to the MAIN JUNCTION BOX-AMPLIFIER.

Follow the procedures in the above paragraph for normal communications with a telephone connected to the OUTSIDE CONTROL BOX.

CAUTION

WHEN USING AN EXTERNAL TELEPHONE, **DO NOT** CRANK OR RING TO SIGNAL THE PERSONS INSIDE THE VEHICLE. SIGNALING SHOULD BE DONE BY TALKING OR WHISTLING.

2-98. PREPARATION FOR MOVEMENT



Routine movement normally requires that the antennas be tied-down.

CAUTION

MAKE SURE THAT ANTENNAS ARE SECURELY FASTENED TO PREVENT SNAPPING OUT DURING ROAD/RAIL MOVEMENT, ANTENNAS DO NOT CROSS EACH OTHER, ANTENNA TIP IS IN PLACE AND THAT THE ANTENNA DOES NOT EXTEND BEYOND THE SIDES OF THE VEHICLE.

WARNING

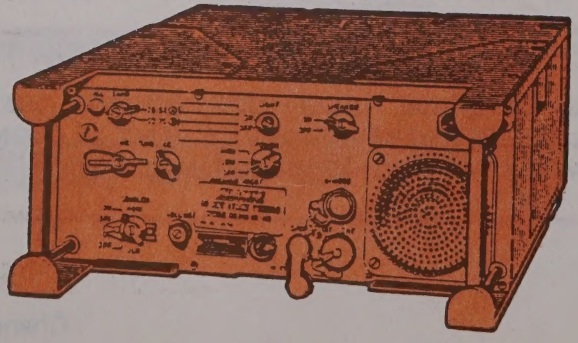
WITH THE ANTENNA TIED DOWN IN THE SECURE POSITION, DAMAGE TO THE WHIP CAN OCCUR IF THE WHIP CONTACTS ANY FIXED OBJECT SUCH AS OVERHEAD BRIDGE ETC. THE POSSIBILITY OF SERIOUS OR FATAL INJURY EXISTS TO OUTSIDE PERSONNEL FROM FLYING ANTENNA PARTS.

CAUTION

BEFORE STARTING THE VEHICLE, SHUT OFF ALL POWER TO THE RADIO AND INTERCOM EQUIPMENT.

2-99. PACKING AND SHIPMENT

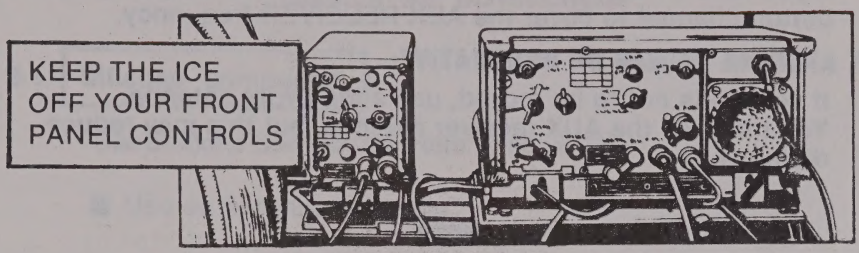
When shipping a radio, tie or brace it in the vehicle or container so it will not bounce around and damage the guards and handles on the front panel.

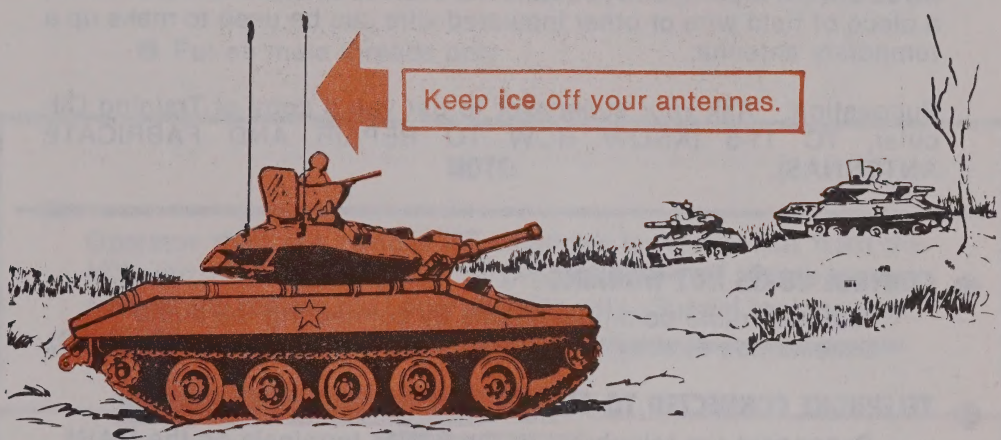


SECTION VII
OPERATION UNDER UNUSUAL CONDITIONS

2-100. OPERATION AT LOW TEMPERATURES

Keep radio front panel controls free of **ice.**





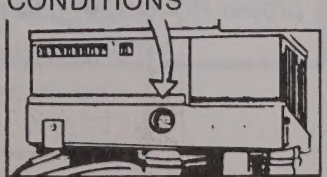
- Do not bend your cables and cords suddenly.
- If possible, keep radio equipment on. If not possible, **warm-up** both the R-T and AUX receivers before operation.
- Make sure that the vehicle charging system can maintain a satisfactory **battery charging rate.**

2-101. OPERATION IN DESERT AND DUSTY AREAS

- Keep **clothing** and other items off the radio.
- If your radio equipment is constantly exposed to the sun, it should be protected with a heat reflecting paint. Request this service from your supporting maintenance group.
- Watch the **water level** in the vehicle battery. Keep it at the proper level.

AND — UNDER ALL CONDITIONS

Make sure the R-T blower port area is free for proper air flow.



2-102. EMERGENCY PROCEDURES

- **AUX RECEIVER FAILS:**

  If you have a PUSHBUTTON R-T (RT-246(*)/VRc), try using a push-button channel to cover the AUX RECEIVER frequency.

- **R-T ANTENNA BROKEN OR INOPERATIVE:**

  If vehicle is not to be moved, use a long wire antenna. You may use the AUX receiver antenna, but this may reduce distance.

NOTE

If you are not moving and you have a broken or unusable whip antenna, a piece of field wire or other insulated wire can be used to make up a temporary antenna.

Suggestion: Ask your supervisor to get you a copy of Training Circular, TC 11-5 (KNOW HOW TO REPAIR AND FABRICATE ANTENNAS).

- **CONTROL BOXES NOT WORKING**

  Maintain radio communications by connecting the audio accessories directly to the front panel of the radio (see pg. 1-43).

- **TELEPHONE CONNECTED TO OUTSIDE CONTROL BOX NOT WORKING**

  Reconnect the telephone to the LINE terminals on the MAIN JUNCTION BOX-AMPLIFIER.

- **RADIO RELAY OPERATION (USING THE MAIN JUNCTION BOX-AMPLIFIER) NOT WORKING:**

  Ask C-E ORG MAINT to try connecting the RADIO RELAY BOX to the R-T MOUNTS.

- **HEAT PROBLEMS-THE R-T BLOWER KEEPS RUNNING WHEN THE R-T IS NOT KEYED AND THE R-T CASE IS WARMER THAN NORMAL**

  Another way to help reduce the heat generated by the R-T is to operate the R-T with the R-T input voltage at the lower limits (24 to 28 volts dc) - the closer to 24 volts, the better.

CAUTION

If possible, use this emergency procedure only if your R-T has been checked out during the past 3 months by C-E ORG MAINTENANCE for proper R-T output and proper matching of the R-T to its antenna.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

SECTION I.

LUBRICATING INSTRUCTIONS

3-1. **Silicone** compound

Use Silicone Compound (item 2, appx. D)

- Use on antenna sections
- Clean threads before you apply the SILICONE COMPOUND
- Put on male threads only

NOTE:

Operator shall not remove RT antenna's lower element from the MX unit. This is a function of C-E ORG MAINT. Operator may remove and replace the upper element only. Special tool required.

CAUTION

Do not use graphite grease on the threads.

- Use on O'rings and accessory connectors

(small amount with care)

CAUTION

Make sure no SILICONE COMPOUND gets on the contacts or pins of any receptacle.

Section II. TROUBLESHOOTING PROCEDURES

The TROUBLESHOOTING chart tells you some of the troubles you may encounter during the operation of the radio sets when they are used with an intercom system. You should perform the tests, inspections and corrective actions in the order listed.

This manual cannot cover all the troubles that may occur, nor all tests or inspections and corrective actions. If a trouble is not listed or it cannot be corrected by doing the corrective actions, notify your supervisor.

NOTE: DO NOT TRY TO TROUBLESHOOT THE RADIO AND INTERCOM EQUIPMENT UNTIL YOU HAVE CHECKED WITH C-E ORG MAINTENANCE TO MAKE SURE THAT THE LINKS IN ALL RADIO MOUNTS ARE CONNECTED SO YOU CAN CONTROL POWER TO RADIO AND INTECOM EQUIPMENT AS THIS TM TELLS YOU.

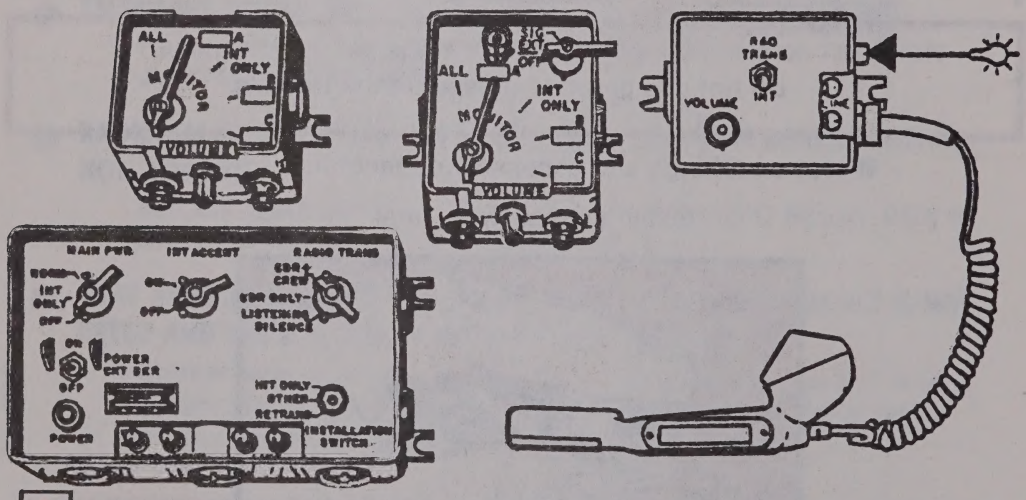
Table 3-1. TROUBLESHOOTING

TROUBLE

Test or Inspection

Corrective action.

MAIN JUNCTION BOX-AMPLIFIER AND CONTROL BOXES CONNECTED TO IT



1. YOU CANNOT COMMUNICATE ON RADIO OR INTERCOM FROM ANY CONTROL BOX.

Step 1. Check your cables and their connections.

Trace out the cables in your system and make sure that the cables are properly connected, firmly seated and tightly connected in the receptacles.

NOTE: DON'T FORGET TO CHECK THE MAIN POWER CABLE TO THE INSTALLATION OR VEHICLE MAIN ELECTRICAL POWER SOURCE.

TROUBLESHOOTING - Continued

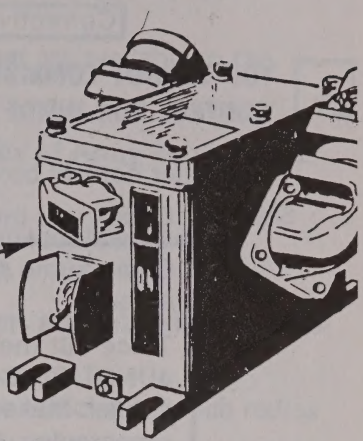
TROUBLE

Test or Inspection

Corrective action.

Step 2. Check to see that power is available to the radio and intercom equipment.

Make the following control adjustments:



SUPPRESSOR (MX-7778B/GRC) (if used).

Set CIRCUIT BREAKER to ON.

Set BATTLE OVERRIDE switch to OFF.

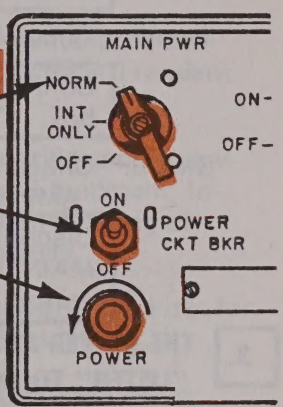
MAIN JUNCTION BOX-AMPLIFIER

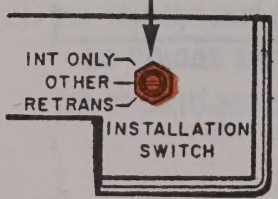
Turn INSTALLATION switch to OTHER.

Turn MAIN PWR switch to NORM.

Set PWR CKT BKR switch to ON.

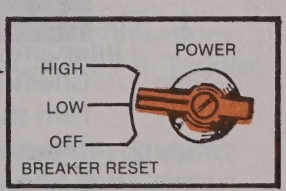
Rotate POWER indicator lens 1/4 turn counter-clockwise.





"A" R-T (the R-T connected to J501 on the MAIN JUNCTION BOX-AMPLIFIER

Turn POWER switch to LOW or HIGH.



NOTE:

This procedure should apply power to the "A" R-T and this R-T should supply power to the MAIN JUNCTION BOX and its POWER indicator lamp and to all the control boxes.

CAUTION

IF THE PWR CKT BKR SWITCH ON THE MAIN JUNCTION BOX FLIPS TO OFF, MOVE IT BACK TO ON, IF THE SWITCH FLIPS BACK TO OFF, **DO NOT RESET IT AGAIN,** CALL ORGANIZATIONAL C-E MAINTENANCE.

TROUBLESHOOTING - Continued

TROUBLE

Test or Inspection

Corrective action.

2. YOU CANNOT COMMUNICATE ON RADIO OR INTERCOM FROM ONE CONTROL BOX INSIDE THE VEHICLE.

NOTE:

All other control boxes inside the vehicle are OK.

Step 1. Check you interconnecting and audio accessory cables.

Clean audio plug and jack contacts with a pencil eraser.

Trace out the cable from the control box to the MAIN JUNCTION BOX-AMPLIFIER and the audio accessory cables. Make sure they are connected to the proper receptacles, firmly seated and snug.

Step 2. Check for a defective audio accessory.

Connect a known good audio accessory to the control box.

Step 3. Check out the receptacles on the MAIN JUNCTION BOX-AMPLIFIER.

Disconnect one of the operating control boxes from the MAIN JUNCTION BOX-AMPLIFIER and connect the control box you are troubleshooting in its place.

3. THE DRIVER AND ALL CREWMEMBERS CANNOT "KEY THE RADIO" OR "LISTEN" TO THE RADIO AT THEIR CONTROL BOXES.

NOTE

1. All control boxes work on intercom.

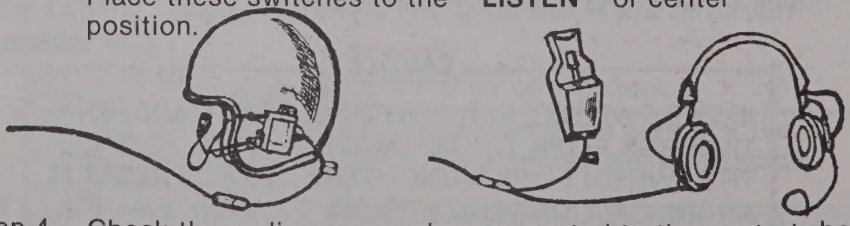
NOTE

2. The COMMANDER'S control box **works** on both radio and intercom.

Step 1. Check the control settings on the MAIN JUNCTION BOX.
Turn the RADIO TRANS switch to **CDR + CREW**

Step 2. Check the control settings on all control boxes.
Turn all MONITOR switches to a good radio position like ALL.

Step 3. Check the switches on all DH-132A helmets and all combination earphone-headsets.
Place these switches to the **"LISTEN"** or center position.



Step 4. Check the audio accessories connected to the control boxes.
In turn, substitute a known good accessory.

APPENDIX A
REFERENCE

The following is a list of applicable references that are available to the operator of AN/VRC-12 series radios.

DA Pam 25-30	Consolidated Index of Army Publications and Blank Forms.
DA Pam 738-750	The Army Maintenance Management System (TAMMS).
SB 11-131	Vehicular radio sets and authorized installations.
SB 11-624	Warning notice for vehicles in which radios are mounted.
SB 11-638	Application, Installing, Maintenance and Testing of Suppressor, Electrical Transient (NSN 5915-01-024-3877).
TB 43-0118	Field Instructions for Painting and Preserving Electronics Command Equipment, Including Camouflage Pattern Painting of Electrical Equipment Shelters.
TM 10-8400-201-23	Operation and Direct Service Procedures for Clothing and Individual Equipment.
TM 11-5810-256-OP-1	Net Controller Operating Procedures for Communications Security Equipment TSEC/KY-57.
TM 11-5810-256-OP-4	Operating Procedures for Communications Security Equipment TSEC/KY-57 in Tracked Vehicles.
TM 11-5810-256-12	Operator's and Organizational Maintenance for Communications Security Equipment TSEC/KY-57.
TM 11-5810-290-14&P	Operator's and Organizational, Direct Support and General Support Maintenance Manual for Installation Kits, Electronic Equipment Used with Communications Security Equipment TSEC/KY-38 and HYL-3/TEC.

APPENDIX A (Continued)

TM 11-5810-300-12	Operator's and Organizational Maintenance Manual for NESTOR Communications Systems Using TSEC/KY-8 and TSEC/KY-38 with Radio Sets and Associated Equipment.
TM 11-5810-312-12	Operator's and Organizational Maintenance Manual: Installation Kits for communications Security Equipment TSEC/KY-57.
TM 11-5820-348-15	Organizational, Direct Support, General Support, and Depot Maintenance Manual: Antenna Equipment RC-292 (NSN 5985-00-497-8554).
TM 11-5820-401-10-1	Operator's Manual: Radio Sets AN/VRC-12 (NSN 5820-00-223-7412), AN/VRC-43 (5820-00-223-7415), AN/VRC-44 (5820-00-223-7417), AN/VRC-45 (5820-00-223-7418), AN/VRC-46 (5820-00-223-7433), AN/VRC-47 (5820-00-223-7434), AN/VRC-48 (5820-00-223-7435), and AN/VRC-49 (5820-00-223-7437) (used without an intercom system).
TM 11-5820-401-10-2-HR	Hand Receipt Technical Manual Covering End Item/Components of End Item (COEI). Basic Issue Items, and Additional Authorization List (AAL) for Radio Sets AN/VRC-12 (NSN 5820-00-223-7412), AN/VRC-43 (5820-00-223-7415), AN/VRC-44 (5820-00-223-7417), AN/VRC-45 (5820-00-223-7418), AN/VRC-46 (5820-00-223-7433), AN/VRC-47 (5820-00-223-7434), AN/VRC-48 (5820-00-223-7435), and AN/VRC-49 (5820-00-223-7437) (used with Intercom System).
TM 11-5820-401-20-2	Organizational Maintenance Manual for Radio Sets: AN/VRC-12 (NSN 5820-00-223-7412), AN/VRC-43 (NSN 5820-00-223-7415), AN/VRC-44 (NSN 5820-00-223-7417), AN/VRC-45 (NSN 5820-00-223-7418), AN/VRC-46 (NSN 5820-00-223-7433), AN/VRC-47 (NSN 5820-00-223-7434), AN/VRC-48 (NSN 5820-00-223-7435), AN/VRC-49 (NSN 5820-00-223-7437). (Used with Intercom Set AN/VIC-1(V).

APPENDIX A (Continued)

TM 11-5830-340-12	Operator's and Organizational Maintenance Manual (Including Repair Parts and Special Tools Lists): Intercommunications Set AN/VIC-1(V). Controls Intercommunications Set, C-10456/VRC (NSN 5830-01-082-0804), C-10680/VRC and Amplifier, Audio Frequency, AM-7046/VRC.
TM 11-5915-223-12	Operator's and Organizational Maintenance Manual: Suppressor, Electrical Transient MX-7778/GRC (NSN 5915-00-937-9564).
TM 11-5915-224-14	Operator's, Organizational, Direct Support and General Support Maintenance Manual: Suppressor, Electrical Transient MX-7778A/GRC (NSN 5915-00-431-6718).
TM 11-5965-280-15	Operator, Organizational, Direct Support, General Support, and Depot Maintenance Manual (Including Repair Parts and Special Tools List): Handset H-189/GR (NSN 5965-00-069-8886).
TM 11-5985-262-15	Operator's, Organizational, Direct Support, General Support, and Depot Maintenance Manual: Antenna AS-1729/VRC (NSN 5985-00-985-9024).
TM 11-5985-355-13	Operator's, Organizational, and Direct Support Maintenance Manual: Antenna AS-2731/GRC (NSN 5985-01-017-0785).
TM 11-5985-357-13	Operator's, Organizational and Direct Support Maintenance Manual for Antenna Group OE-254/GRC (NSN 5985-01-063-1574).
TM 11-5995-202-15	Operator Organizational, Direct Support, General Support and Depot Support Maintenance Manual for Transmission Cable Kits MD-456/GRC and MK-456A/GRC (NSN 5995-00-973-1544)
TM 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command).

APPENDIX B
COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

B-1. Scope

This appendix lists integral components of and basic issue items for the Radio Sets AN/VRC-12 and AN/VRC-43 through AN/VRC-49 to help you inventory items required for safe and efficient operation.

B-2. General

This Components of End Item List is divided into the following sections:

a. **Section II. Integral Components of the End Item.**

These items, when assembled, comprise the Radio Sets AN/VRC-12 and AN/VRC-43 through AN/VRC-49 and must accompany them whenever they are transferred or turned in. The illustration will help you identify these items.

b. **Section III. Basic Issue Items.** Not applicable.

B-3. Explanation of Columns

a. **Illustration.** This column is divided as follows:

(1) **Figure number.** Indicates the figure number of the illustration on which the item is shown.

(2) **Item number.** The number used to identify item called out in the illustration.

b. **National Stock Number.** Indicates the National stock number assigned to the item and which will be used for requisitioning.

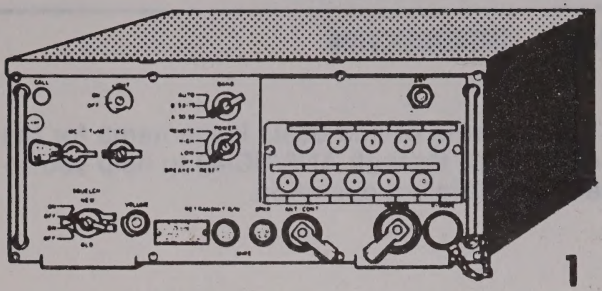
c. **Description.** Indicates the Federal item name and, if required a minimum description to identify the item. The part number indicates the primary number used by the manufacturer, which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items. Following the part number, the Federal Supply Code for Manufacturers (FSCM) is shown in parentheses.

d. **Location.** The physical location of each item listed is given in this column. The lists are designed to inventory all items in one area of the major item before moving on to an adjacent area.

e. **Usable on Code.** Not applicable.

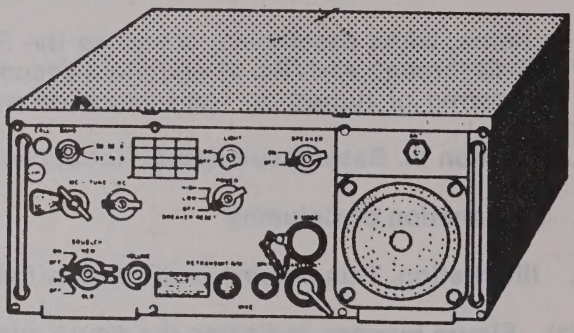
f. **Quantity Required (Qty Reqd).** This column lists the quantity of each item required for a complete major item.

g. **Quantity.** This column is left blank for use during an inventory. Under the Rcvd column, list the quantity you actually receive on your major item. The Date columns are for your use when you inventory the major item.



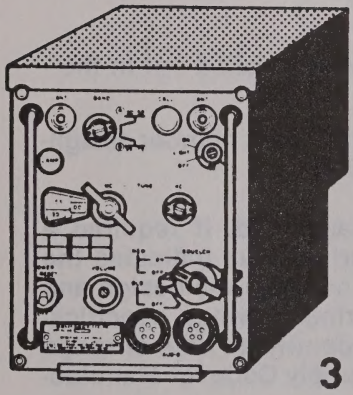
1

RT-246/VRC



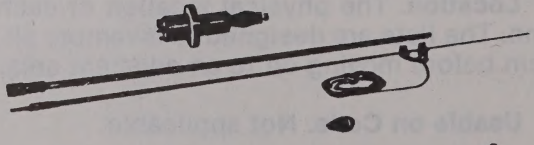
2

RT-524/VRC



3

R-442/VRC



4

FIGURE B-1

SECTION II ADDITIONAL AUTHORIZATIONAL LIST

NATIONAL STOCK NUMBER	DESCRIPTION	QTY
5820-00-412-1717	INSTALLATION KIT FOR MX-7778A/GRC	1
	AN/VRC-46:	
5820-00-762-4870	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-493-7542	MK-1264/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-412-1717	INSTALLATION KIT FOR MX-7778A/GRC	1
	AN/VRC-47:	
5820-00-726-4866	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-493-7537	MK-1263/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-412-1717	INSTALLATION KIT FOR MK-7778A/GRC	1
	RADIO SETS USED IN M48A3	
	AN/VRC-12:	
5820-00-494-6620	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-493-7537	MK-1263/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-412-1717	INSTALLATION KIT FOR MX-7778A/GRC	1
	AN/VRC-46:	
5820-00-494-6618	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-493-7542	MK-1264/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-412-1717	INSTALLATION KIT FOR MX-7778A/GRC	1
	AN/VRC-47:	
5820-00-493-3040	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-493-7537	MK-1263/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-412-1717	INSTALLATION KIT FOR MX-7778A/GRC	1

SECTION II ADDITIONAL AUTHORIZATIONAL LIST

NATIONAL STOCK NUMBER	DESCRIPTION	QTY
	RADIO SETS USED IN M48A5	
	AN/VRC-12:	
5820-01-057-5746	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-493-7537	MK-1263/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-412-1717	INSTALLATION KIT FOR MX-7778A/GRC	1
	AN/VRC-46:	
5820-01-057-5745	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-493-7542	MK-1264/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-412-1717	INSTALLATION KIT FOR MX-7778A/GRC	1
	AN/VRC-47:	
5820-01-057-5747	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-493-7537	MK-1263/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-412-1717	INSTALLATION KIT FOR MX-7778A/GRC	1
	RADIO SETS USED IN M56	
	AN/VRC-12:	
5820-00-493-7509	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-938-0239	MK-1315/VRC-12 ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-763-2062	INSTALLATION KIT FOR MX-7778A/GRC	1

SECTION II ADDITIONAL AUTHORIZATIONAL LIST

NATIONAL STOCK NUMBER	DESCRIPTION	QTY
	AN/VRC-46:	
5820-00-493-7512	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-191-7382	MK-1317/GRC ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-763-2062	INSTALLATION KIT FOR MX-7778A/GRC	1
	RADIO SETS USED IN M60	
	AN/VRC-12:	
5820-00-493-3026	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-938-0247	MK-1303/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-412-1974	INSTALLATION KIT FOR MX-7778A/GRC	1
	AN/VRC-46:	
5820-00-493-3035	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-938-0248	MK-1302/G ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-412-1974	INSTALLATION KIT FOR MX-7778A/GRC	1
	AN/VRC-47:	
5820-00-493-3037	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-938-0247	MK-1303/V ACCESSORY KIT (FOR RADIO)	1
5820-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-412-1974	INSTALLATION KIT FOR MX-7778A/GRC	1
	RADIO SETS USED IN M60A1	
	AN/VRC-12:	
5820-00-494-6625	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	

SECTION II ADDITIONAL AUTHORIZATIONAL LIST

NATIONAL STOCK NUMBER	DESCRIPTION	QTY
5820-00-938-0247	MK-1303/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-412-1974	INSTALLATION KIT FOR MX-7778A/VRC	1
	AN/VRC-46:	
5820-00-494-6624	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-938-0248	MK-1302/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-412-1974	INSTALLATION KIT FOR MX-7778A/GRC	1
	AN/VRC-47:	
5820-00-494-6627	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-938-0247	MK-1303/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-412-1974	INSTALLATION KIT FOR MX-7778A/GRC	1
	RADIO SETS USED IN M60A2	
	AN/VRC-12:	
5820-00-493-7494	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-494-6648	MK-1294/V ACCESSORY KIT (FOR RADIO)	1
5915-01-024-3877	SUPPRESSOR, ELECTRICAL TRANSIENT (MINI-SUPPRESSOR) (ON MT-1029/VRC)	1
	AN/VRC-46:	
5820-00-494-6636	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-494-6642	MK-1287/G ACCESSORY KIT (FOR RADIO)	1
5915-00-024-3877	SUPPRESSOR, ELECTRICAL TRANSIENT (MINI-SUPPRESSOR) (IN MT-1029/VRC)	1

SECTION II ADDITIONAL AUTHORIZATIONAL LIST

NATIONAL STOCK NUMBER	DESCRIPTION	QTY
5820-00-492-6096	MK-1262/VIC-1(V) ACCESSORY KIT (FOR AN/VIC-1)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-486-7285	INSTALLATION KIT FOR MX-7778A/GRC	1
5820-01-052-8969	SUPPLEMENT KIT: 3d C-2298/VRC IN T-O-W MISSILE (TARGET ON WIRE) CONFIGURATION	1
	AN/VRC-46:	
5820-00-762-4851	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-493-7545	MK-1265/V ACCESSORY KIT (FOR RADIO)	1
5820-00-492-6096	MK-1262/VIC-1(V) ACCESSORY KIT (FOR AN/VIC-1)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR ELECTRICAL TRANSIENT	1
5820-00-486-7285	INSTALLATION KIT FOR MX-7778A/GRC	1
5820-01-052-8969	SUPPLEMENT KIT: 3d C-2298/VRC IN T-O-W MISSILE (TARGET ON WIRE) CONFIGURATION	1
	AN/VRC-47:	
5820-00-762-4853	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-493-7546	MK-1266/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-486-7285	INSTALLATION KIT FOR MX-7778A/GRC	1
5820-01-052-8969	SUPPLEMENT KIT: 3d C-2298/VRC IN T-O-W MISSILE (TARGET ON WIRE) CONFIGURATION	1
	AN/VRC-48:	
5820-00-762-4852	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-938-0283	MK-1267/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-486-7285	INSTALLATION KIT FOR MX-7778A/GRC	1

SECTION II ADDITIONAL AUTHORIZATIONAL LIST

NATIONAL STOCK NUMBER	DESCRIPTION	QTY
5820-01-052-8969	SUPPLEMENT KIT: 3d C-2298/VRC IN T-O-W MISSILE (TARGET ON WIRE) CONFIGURATION	1
	AN/VRC-49:	
5820-00-762-4854	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-493-7547	MK-1268/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-486-7285	INSTALLATION KIT FOR MX-7778A/GRC	1
5820-01-052-8969	SUPPLEMENT KIT: 3d C-2298/VRC IN T-O-W MISSILE (TARGET ON WIRE) CONFIGURATION	1
	RADIO SETS USED IN M114A1	
	AN/VRC-12:	
5820-00-492-8267	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-493-7549	MK-1280/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-001-1379	INSTALLATION KIT FOR MX-7778A/GRC	1
	AN/VRC-43:	
5820-00-492-8266	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-493-7551	MK-1273/G ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1
5820-00-001-1379	INSTALLATION KIT FOR MX-7778A/GRC	1
	AN/VRC-45:	
5820-00-492-8269	INSTALLATION HARNESS (FOR RADIO/INTERCOM, P/O VEHICLE)	
5820-00-493-7550	MK-1272/V ACCESSORY KIT (FOR RADIO)	1
5915-00-431-6718	MX-7778A/GRC SUPPRESSOR, ELECTRICAL TRANSIENT	1

SECTION II ADDITIONAL AUTHORIZATIONAL LIST

NATIONAL STOCK NUMBER	PART NUMBER AND FSCM	DESCRIPTION	USABLE ON CODE	UNIT OF MEAS	QTY AUTH
		ADAPTER			
5935-00-149-3534	UG-273/U	80058		EA	
5935-00-666-1649	UG-306B/U	80058		EA	
		AMPLIFIER, AUDIO FREQUENCY			
5820-00-892-3342	AM-1780/URC	80063		EA	
		ANTENNA, ELEMENTS			
5985-00-199-8831	MS-116A	80063		EA	
5985-00-115-7149	MS-117A	80063		EA	
5985-00-238-7474	MS-118A	80063		EA	
		CONTROL, FREQUENCY SELECTOR			
5820-00-892-3343	C-2742/VRC	80063		EA	
		CONTROL, INTERCOMMUNICATION SET			
5820-00-892-3337	C-2296/VRC	80058		EA	
5820-00-892-3338	C-2297/VRC	80058		EA	
5820-00-892-3339	C-2298/VRC	80058		EA	
		CONTROL, RADIO SET			
5820-00-892-3340	C-2299/VRC	80058		EA	
		HANDSET			
5965-00-069-8886	H-189/GR	80058		EA	
5965-00-043-3463	H-250/U	81134		EA	
		CABLE ASSEMBLY, POWER, ELECTRICAL			
5995-00-889-0900	CX-4720 VRC (1 Ft.)	80058		FT	
5995-00-169-6049	CX-4720 VRC (3 Ft.)	80058		FT	
5995-00-889-0708	CX-4720 VRC (4 Ft.)	80058		FT	
5995-00-823-2828	CX-4720 VRC (5 Ft.)	80058		FT	
5995-00-823-2827	CX-4720 VRC (6 Ft.)	80058		FT	
5995-00-889-1148	CX-4720 VRC (8 Ft.)	80058		FT	
5995-00-823-2726	CX-4720 VRC (10 Ft.)	80058		FT	
5995-00-889-1253	CX-4720 VRC (12 Ft.)	80058		FT	
5995-00-823-2854	CX-4720 VRC (14 Ft.)	80058		FT	
5995-00-985-8395	CX-4720 VRC (16 Ft.)	80058		FT	
5995-00-889-0836	CX-4720 VRC (20 Ft.)	80058		FT	
5995-00-987-1299	CX-4720 VRC (30 Ft.)	80058		FT	
5995-00-985-7877	CX-4721 VRC (2 Ft.)	80058		FT	
5995-00-823-2770	CX-4721 VRC (3 Ft.)	80058		FT	
5995-00-823-8945	CX-4721 VRC (5 Ft.)	80058		FT	
5995-00-823-2769	CX-4721 VRC (6 Ft.)	80058		FT	
5995-00-823-2852	CX-4721 VRC (8 Ft.)	80058		FT	
5995-00-823-2912	CX-4721 VRC (10 Ft.)	80058		FT	
8470-01-130-8180	HELMET DH-132A			SM	
8470-01-130-3794	HELMET DH-132A			MED	
8470-01-130-3795	HELMET DH-132A			LRG	

SECTION II ADDITIONAL AUTHORIZATIONAL LIST

NATIONAL STOCK NUMBER	PART NUMBER AND FSCM	DESCRIPTION	USABLE ON CODE	UNIT OF MEAS	QTY AUTH
		CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL			
5995-00-823-2817	CX-4722 VRC (2 Ft.)	80058		FT	
5995-00-823-2824	CX-4722 VRC (3 Ft.)	80058		FT	
5995-00-823-2820	CX-4722 VRC (7 Ft.)	80058		FT	
		HEADSET			
5965-00-892-1010	H-140/U	80058		EA	
5965-00-043-3460	H-251/U	81134		EA	
		HEADSET-MICROPHONE			
5965-00-179-3789	H-161/U	80058		EA	
		HEADSET-MICHROPHONE KIT			
5965-00-937-1850	MK-1039/G	81349 (Installed in DH-132 Helmet T56-6)		EA	
5965-00-313-8958	MK-1697/G	80058 (Installed in DH-132A Helmet 23-72)		EA	
		LOUDSPEAKER			
5965-00-876-2375	LS-454/U	80058		EA	
		MAST BASE			
5985-00-221-5544	AB-15/GR	80058		EA	
5820-00-474-6163	AB-558/GR	80058		EA	
		MICROPHONE			
5965-00-179-7762	M-80/U	81349		EA	
		MOUNTING			
5820-00-893-1323	MT-1029/VRC	80063		EA	
5820-00-893-1324	MT-1898/VRC	80063		EA	
		CABLE ASSEMBLY, RADIO FREQUENCY			
5995-00-823-2986	CG-1773A/U,B/U(3 Ft.)	88058		FT	
5995-00-889-1037	CG-1773A/U (4 Ft.)	88058		FT	
5995-00-823-2990	CG-1773A/U (8 Ft.)	88058		FT	
5995-00-985-8394	CG-1773A/U (16 Ft.)	88058		FT	
5995-00-823-2987	CG-1773B/U (4 Ft.)	88058		FT	
5995-00-823-2988	CG-1773B/U (5 Ft.)	88058		FT	
5995-00-823-2989	CG-1773B/U (6 Ft.)	88058		FT	
5995-00-823-2991	CG-1773B/U (7 Ft.)	88058		FT	
5995-00-823-3074	CG-1773B/U (9 Ft.)	88058		FT	
5995-00-823-3073	CG-1773B/U (10 Ft.)	88058		FT	
5995-00-823-2992	CG-1773B/U (12 Ft.)	88058		FT	
5995-00-926-8310	CG-1773B/U (13 Ft.)	88058		FT	
5995-00-985-7551	CG-1773B/U (15 Ft.)	88058		FT	

APPENDIX D
EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. Scope

This appendix lists expendable supplies and materials you will need to operate and maintain the Radio Sets AN/VRC-12 and AN/VRC-43 through AN/VRC-49. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

D-2. Explanation of Columns

a. Column 1—Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, App. D").

b. Column 2—Level. This column identifies the lowest level of maintenance that requires the listed item.

C—Operator/Crew

O—Organizational Maintenance

F—Direct Support Maintenance

H—General Support Maintenance

c. Column 3—National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column 4—Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part number followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, if applicable.

e. Column 5—Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

SECTION II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER	PART NO. AND FSCM	(4) DESCRIPTION	(5) UNIT OF MEAS
1	C	5970-00-816-6056 419-4291	HH-I-595B1080 MIL-I-24391	Insulation Tape, Electrical 81349	FT
2	C	6850-00-880-7616	MIL-S-8660-C	Silicone Compound 81349	OZ
3	C	9505-00-293-4208		Lockwire (safety wire) 30889	EA
4			DELETED		OZ
5	C	5330-00-905-6032	S91	O'Ring 80063	EA
6	C	7510-00-290-8036	PPP 97 TYPE 1	Pressure Sensitive Tape, Filament Reinforced 81348	YD

INDEX

SUBJECT	PAGE
-A-	
Abbreviations	1-13
Antennas:	
Connections	2-71
Disassembly	2-73
Tiedown Procedure	2-72
Troubleshooting	3-9
Antenna (AS-1729/VRC or AT-912/VRC):	
Disassembly	2-73
Frequency Tuning	2-99
Installation	2-69
PMCS	2-46
Troubleshooting	3-9
Antenna, Auxiliary Receiver (AB-558/GRC):	
Installation	2-70
PMCS	2-46
Antenna, Compact (AS-2731/GRC):	
Installation	2-70
PMCS	2-46
Antenna, Extended Range (RC-292 or OE-254/GRC):	
Performance Data	1-33
PMCS	2-46
Antenna, Telescoping Mount (AB-903/G):	
Performance Data	1-38
PMCS	2-46
Antijamming	2-122
AN/VRC-12 Series of Radios:	
Performance Data	1-16
Purpose, Capabilities, and Features	1-15
Typical Identification	1-18
Typical Installation	1-17

SUBJECT **INDEX - Continued** PAGE

AN/VRC-12 Used with NESTOR COMSEC Equipment

Cabling 2-78
Troubleshooting 3-11
Typical Hookup 1-20

AN/VRC-12 Used with VINSON COMSEC Equipment

Cabling 2-76
Troubleshooting 3-11
Typical Hookup 1-22

AN/VRC-43 Used with NESTOR COMSEC Equipment

Cabling 2-75
Troubleshooting 3-8
Typical Hookup 1-26

AN/VRC-44 Used with NESTOR COMSEC Equipment

Cabling 2-80
Troubleshooting 3-12
Typical Hookup 1-26

AN/VRC-45 For Radio Relay Used with NESTOR COMSEC Equipment

Cabling 2-82
Troubleshooting 3-12
Typical Hookup 1-28

AN/VRC-46 With VINSON COMSEC Equipment

Cabling 2-90
Troubleshooting 3-8

AN/VRC-47 With VINSON COMSEC Equipment used in M1 ABRAMS Tank

Cabling 2-84
Troubleshooting 3-11
Typical Hookup 1-32

AN/VRC-48 Used with NESTOR COMSEC Equipment

Cabling 2-86
Troubleshooting 3-12
Typical Hookup 1-34

AN/VRC-49 For Radio Relay Used with VINSON COMSEC Equipment

Cabling 2-88
Troubleshooting 3-12
Typical Hookup 1-36

INDEX - Continued

SUBJECT PAGE

Audio Accessories:

- Connections 1-42
- Differences Among Models 1-42
- Operation 2-96
- PMCS 2-54
- Troubleshooting 3-2

Auxiliary Receiver R-442(*)/VRC:

- Antenna Receptacles 2-20
- Audio Accessory Receptacles 2-18
- Band Switch 2-17
- Controls, Indicators and Receptacles 2-16
- Frequency Controls 2-17
- Installation and Removal 2-68
- Lamps and Indicators 2-19
- Operation 2-109
- Power Switch 2-19
- PMCS 2-56
- Squelch Control 2-18
- Troubleshooting 3-10
- Volume Control 2-18
- X-Mode Operation 2-108
- X-Mode Switch 2-22

-B-

Battery, Vehicle, PMCS 2-59

Battle Override Switch 2-42

- Operation 2-98

-C-

Cabling 2-75

Cabling for telephone communication 2-89.1

Combat Vehicle Crewmember's DH-132 Helmet:

- Operation 2-94
- PMCS 2-60

Commander's Control Box (C-2298/VRC):

- Controls and Receptacles 2-39
- Operation 2-114
- PMCS 2-63
- Troubleshooting 3-2

Common Names 2-2

Communications-Electronics (C-E) Organizational Maintenance:

- PMCS 2-66

SUBJECT	PAGE
Compact Antenna (AS-2731/GRC), Installation	2-70
COMSEC Equipment, VINSON TSEC/KY-57 Operator Controls and Receptacles	2-23
Control Boxes:	
Commander's Control Box (C-2298/VRC):	
Controls and Receptacles	2-39
Operation	2-114
PMCS	2-63
Troubleshooting	3-2
Crewmember's Control Box (C-2298/VRC):	
Controls and Receptacles	2-36
Operation	2-12
PMCS	2-63
Troubleshooting	3-2
Crewmember's Control Box for XM1 Tank (C-10456/VRC)	2-37
Driver's Control Box (C-2297/VRC):	
Controls and Receptacles	2-40
Operation	2-115
PMCS	2-63
Troubleshooting	3-2
Outside Control Box (C-2296/VRC):	
Controls and Receptacles	2-41
Operation	2-116
PMCS	2-65
Troubleshooting	3-2
-D-	
DA Form 2404	89
Description and use of Operator's Controls, Indicators and Receptacles	45

INDEX - Continued

SUBJECT	PAGE
Destruction of Army Materiel	1-14
Differences:	
Between Crewmember Control Boxes	1-41
Between Models	1-39
Between Receptacles and Cables	1-40
Connections for Audio Connections	1-42
Connections to Radio Relay Box	1-44
-E-	
Emergency Procedures	2-120
Equipment Description	1-15
Establishing Initial Communications	2-100
Extended Range Antenna (RC-292 or OE-254/GRC)	1-38
-F-	
Frequency Selection	2-92
-G-	
General Information	1-1
Glossary	1-13
-H-	
Hand Receipt Technical Manual	1-1
How to Use this Manual	iv
-I-	
Installation, Assembly and Disassembly of Major Items	2-67
Intercommunications:	
Audio Connectors	1-42
Installation	2-74
Operation	2-111
Receptacles	2-23
Troubleshooting	3-2
Typical Installation	1-17
-J-	
Jamming	1-121
-K-	
Keying Radio/Intercom	2-96
-L-	
Lubricating Instructions	3-1

INDEX - Continued

SUBJECT	PAGE
-M-	
Main Junction Box-Amplifier AM-1780/GRC:	
Controls, Indicators and Receptacles	2-28
Installation	2-74
Installation Switch	2-32
Main Power Switch	2-31
Operation	2-110
PMCS	2-62
Radio Trans Switch	2-35
Telephone Operation	2-117
Troubleshooting	3-2
Main Power:	
Controls	2-1
Installation	2-67
Operation	2-97
Turn-off	2-103
Maintenance Forms and Records	1-14
Maintenance Instructions	3-1
Manual Tuning of R-T	2-99
Mini Suppressor:	
Indicators	2-43
Operation	2-98
Mounts:	
Installation	2-68
PMCS	2-55
Troubleshooting	3-8
-N-	
Nomenclature Cross Reference List	1-1
-O-	
Operating Frequencies	2-92
Operating Instructions	2-1
Operation Under Unusual Conditions	2-119
Operation Under Usual Conditions	2-93
Operators Instructions	1-42
Outside Call Lamp PMCS	2-65

SUBJECT PAGE

Outside Control Box C-2296/VRC
- Controls 2-41
- Operation 2-116
- PMCS 2-65
- Troubleshooting 3-2

-P-

Packing and Shipping 2-118
Performance Data 1-16
Power Turn On 2-44
Preparation for Movement 2-97
Preparation for Storage or Shipment 2-118
Preventive Maintenance Checks and Services (PMCS) 1-14
Pushbutton Tuning:
- Controls 2-4
- Operation 2-101
- PMCS 2-57
- Remote Control Operation 2-104

-Q-

-R-

Radio Relay Control Box (C-2299/VRC)
- Controls 2-14
- Operation 2-106
- PMCS 2-57
- Troubleshooting 3-8

Receiver-Transmitter RT-246(*)/VRC:
- Audio Accessory Receptacles 2-9
- Band Switch 2-3
- Controls, Indicators and Receptacles 2-2
- Installation/Removal 2-68
- Lamps and Indicators 2-11
- Manual Tuning 2-99
- Normal Operation 2-93
- PMCS 2-56
- Power Switch 2-3
- Pushbutton Operation 2-101
- Pushbutton Presetting 2-4
- Remote Control Controls 2-6
- Remote Control Operation 2-104
- Squelch Control 2-10
- Troubleshooting 3-8
- Turn-off Procedure 2-103
- Volume Control 2-9
- X-Mode Receptacle 2-8
- X-Mode Switch 2-21

INDEX - Continued

SUBJECT	PAGE
Receiver-Transmitter RT-524/VRC	
Controls, Indicators and Receptacles	2-1
Installation/Removal	2-67
Record Operating Frequencies	2-93
Remote control Box (C-2742/VRC)	
Controls	2-6
Operation	2-104
PMCS	2-58
Tandem Operation Controls	2-7
Reporting Equipment Improvement Recommendations	1-14
Reporting of Errors	i
-S-	
Scope	1-1
Siting and Frequency Selection	2-91
Squelch:	
Controls	2-10
Operation	2-10
Troubleshooting	3-2
Suppressor, Electrical Transient (MX-7777/GRC):	1-8
Operation	2-43
PMCS	2-64
Troubleshooting	3-2
-T-	
Tandem Operation-Remote Control	2-105
Controls	2-7
Telephone Operation	2-117
Telescoping Antenna Mast (AB-903/G)	1-38
Tiedown Procedure	B
Troubleshooting	3-2
Turn-Off Procedure	2-103
-U-	
-V-	
VINSON COMSEC (TSEC/KY-57) Contols and Receptacles	1-11

INDEX - Continued

SUBJECT	PAGE
-X	
M1 ABRAMS Tank:	
Controls, Indicators and Receptacles	1-33
Crewmembers Control Box (C-10456/VRC)	1-9
X-Mode:	
Controls	2-21
Operation	2-8
Receptacles	2-22
Set-up	2-21
-Y-	
-Z-	

☆U.S.G.P.O. 1990 712-094/20509

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

THEN. . JOT DOWN THE DOPE ABOUT IT ON THIS FORM, CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)
Commander
Stateside Army Depot
ATTN: AMSTA-US
Stateside, N.J. 07703-5007

DATE SENT
10 July 1975

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-5840-340-12	23 Jan 74	Radar Set AN/PRC-76

BE EXACT. . PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
2-25	2-28			Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°. REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.
3-10	3-3		3-1	Item 5, Function column. Change "2 db" to "3db." REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.
5-6	5-8			Add new step f.1 to read, "Replace cover plate removed at step e.1, above." REASON: To replace the cover plate.
		F03		Zone C 3. On J1-2, change "+24 VDC to "+5 VDC." REASON: This is the output line of the 5 VDC power supply. +24 VDC is the input voltage.

SAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER	SIGN HERE
SSG I. M. DeSpiritof 999-1776	SSG I. M. DeSpiritof

DA FORM 1 JUL 79 2028-2

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